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THE  
PRINCIPLES  
OF  
M I D W I F E R Y;

INCLUDING THE  
DISEASES  
OF  
WOMEN AND CHILDREN.

---

BY JOHN BURNS, M. D.

LECTURER ON MIDWIFERY, AND MEMBER OF THE FACULTY OF PHYSICIANS  
AND SURGEONS, GLASGOW.

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THE FOURTH AMERICAN, FROM THE THIRD LONDON EDITION,  
GREATLY ENLARGED.

---

WITH IMPROVEMENTS AND NOTES,  
BY THOMAS C. JAMES, M. D.

PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF PENNSYLVANIA.

VOL. II.

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DISTRICT OF PENNSYLVANIA, TO WIT:

*Be it remembered*, That on the seventh day of September, in the thirty-eighth year of the Independence of the United States of America, A. D. 1813, Benjamin and Thomas Kite, Johnson and Warner, Edward Parker, Kimber and Conrad, Mathew Carey, Moses Thomas, Anthony Finley, and Redwood Fisher, of the said District, have deposited in this office the title of a Book, the right whereof they claim as Proprietors, in the words following, to wit:

*"The Principles of Midwifery; including the diseases of Women and Children. By John Burns, Lecturer on Midwifery, and Member of the faculty of Physicians and Surgeons, Glasgow. The third American, from the second London Edition, much enlarged. With Improvements and Notes, by Thomas C. James, M. D. Professor of Midwifery in the University of Pennsylvania."*

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*Clerk of the District of Pennsylvania..*

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THE  
PRINCIPLES  
OF  
MIDWIFERY.

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BOOK II.  
OF PARTURITION.

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CHAP. I.

*Of the Classification of Labours.*

LABOUR may be defined to be the expulsive effort made by the uterus for the birth of the child, after it has acquired such a degree of maturity, as to give it a chance of living independently of its uterine appendages.

I propose to divide labours into seven classes; but I do not consider the classification to be of great importance, nor one mode of arrangement much better than another, for the purposes of practice, provided proper definitions be given and plain rules delivered, applicable to the different cases.

The classes which I propose to explain are,

Class I. *Natural Labour*; which I define to be labour taking place at the end of the ninth month of pregnancy; the child presenting the central portion of the sagittal suture, and the forehead being directed at first toward the sacro-iliac symphysis; a due proportion existing betwixt the size of the head, and the capacity of the pelvis; the

pains being regular and effective ; the process not continuing beyond twenty-four hours, seldom above twelve, and very often not for six. No morbid affection supervening, capable of preventing delivery, or endangering the life of the woman.

This comprehends only one order.(a)

(a) Our author might, perhaps with propriety, have divided this class into two orders, viz.

Order 1. The posterior fontanelle of the child presenting towards the left acetabulum, and the anterior fontanelle, or forehead, towards the right sacro-iliac symphysis. This is by far the most common presentation.

Order 2. The posterior fontanelle presenting towards the right acetabulum, and the anterior fontanelle, or forehead, towards the left sacro-iliac symphysis. This position or presentation, according to Baudelocque, occurs but in the proportion of 1 to 7 or 8 of the first.

In an accurate register kept by Baudelocque, it appears, that of 12,183 presentations of the head, 10,003 were of the first position, or with the posterior fontanelle towards the left acetabulum, and 2,113 in the second position, or with the posterior fontanelle towards the right acetabulum.

Classification and systematic arrangement generally, are most frequently purely artificial and arbitrary ; and that of our author's as laid down above, is not such as we can cordially approve, but as his division of the subject in the following sections is founded upon it, we have not deemed it proper to propose any essential alteration. The great and deserved celebrity of Baudelocque as a practical writer, seems, notwithstanding, to demand that we should here briefly state his division of the presentations of the vertex, which he considers as natural.

There are then, according to him, six positions in which the vertex presents at the superior strait, viz.

1. The posterior *fontanelle* is situated behind the left *acetabulum*, and the anterior before the right sacro-iliac symphysis.

2. The posterior *fontanelle* is situated behind the right *acetabulum*, and the anterior before the left *sacro-iliac symphysis*.

3. The posterior *fontanelle* answers to the *symphysis* of the *pubis*, the anterior to the sacrum.

4. The anterior *fontanelle* answers to the left *acetabulum*, and the posterior to the right *sacro-iliac symphysis*.

5. The anterior *fontanelle* is situated behind the right *acetabulum*, and the posterior before the left *sacro-iliac symphysis*.

6. The anterior *fontanelle* is behind the *symphysis* of the *pubis*, and the posterior before the sacrum.

The more frequent occurrence of the 1st and 2d than of the 4th and 5th is calculated to be in the proportion of 80 or 100 to 1. The 3d and 6th pre-

**Class II. *Premature Labour*,** or labour taking place considerably before the completion of the usual period of utero-gestation, but yet not so early as necessarily to prevent the child from surviving.

This comprehends only one order.

**Class III. *Preternatural Labour*,** or those in which the presentation, or position of the child is different from that which occurs in natural labour; or in which the uterus contains a plurality of children, or monsters.

This comprehends seven orders.

Order 1. Presentation of the breech.

Order 2. Presentation of the inferior extremities.

Order 3. Presentation of the superior extremities.

Order 4. Presentation of the back, belly, or sides of the child.

Order 5. Malposition of the head.

Order 6. Presentation of the funis.

Order 7. Plurality of children, or monsters.

**Class IV. *Tedious Labour*,** or labour protracted beyond the usual duration; the delay not caused by the malposition of the child, and the process capable of being finished safely, without the use of extracting instruments.

This comprehends two orders.

Order 1. Where the delay proceeds from some imperfection or irregularity of muscular action.

Order 2. Where it is dependent principally on some mechanical impediment.

**Class V. *Laborious or Instrumental Labour*;** labour which cannot be completed without the use of extracting instruments; or altering the proportion betwixt the size of the child, and the capacity of the pelvis.

This comprehends two orders.

sentations are extremely rare, and indeed may be almost considered as preternatural, or pre-supposing some deformity of the pelvis or fœtal head.

It will be observed, that in the arrangement of our author, the first and second positions of the vertex only, are admitted into the class of natural labour, whilst the third, fourth, fifth and sixth positions of Baudelocque, are thrown into the class of preternatural labours under order 5. Malposition of the head.

Order 1. The case admitting the use of such instruments as do not necessarily destroy the child.

Order 2. The obstacle to delivery being so great, as to require that the life of the child should be sacrificed for the safety of the mother.

Class VI. *Impracticable Labour*; labour in which the child, even when reduced in size, cannot pass through the pelvis.

This comprehends only one order.

Class VII. *Complicated Labour*; labour attended with some dangerous or troublesome accident or disease, connected in particular instances with the process of parturition.

This comprehends six orders.

Order 1. Labour complicated with uterine hemorrhage.

Order 2. Labour complicated with hemorrhage from other organs.

Order 3. Labour complicated with syncope.

Order 4. Labour complicated with convulsions.

Order 5. Labour complicated with rupture of the uterus.

Order 6. Labour complicated with suppression of urine, or rupture of the bladder.

Calculations have been made, of the proportion which these different kinds of labour bear to each other in practice. Thus Dr. Smellie supposes, that out of a thousand women in labour, eight shall be found to require instruments, or to have the child turned, in order to avoid them; two children shall present the superior extremities; five the breech; two or three the face; one or two the ear; and ten shall present with the forehead turned to the acetabulum.

Dr. Bland has, from an hospital register, stated the proportion of the different kinds of labour, to be as follows: of 1897 women, 1792 had natural labour. Sixty-three, or one out of 30, had unnatural labour; in 18 of these, the child presented the feet, in 36, the breech, in 8, the arm, and in 1, the funis. Seventeen, or one out of 111 had laborious labour; in 8 of these, the head of the child required to be lessened, in 4, the forceps were employed, and in the other 5, the face was directed toward the pubis. Nine, or one in 210,

had uterine hemorrhage before or during labour. It is evident, however, that this register cannot form a ground for general calculation; and the reader will perceive, that the number of crotchet cases exceeds those requiring the forceps, which is not observed in the usual course of practice. (b)

(b) From the register kept at l'Hospice de la Maternité, a lying-in hospital at Paris, under the direction of Baudelocque, it appears, that of 12,751 labours, 12,573 at least were *natural*; the assistance of art being necessary in 178 cases only, which is in the proportion of 1 to 71 $\frac{2}{3}$ , of these,

	Cases.
The face presented in - - - - -	18
The shoulders - - - - -	38
The head and umbilical cord - - - - -	15
The thighs - - - - -	22
The feet - - - - -	11
Other parts not specified - - - - -	24
Convulsions and floodings - - - - -	4

As 1 to 96 $\frac{1}{5}$

132

The forceps were applied in 37 cases, which is as 1 to 344 $\frac{2}{3}$ .

The cranium was perforated, or the crotchet applied, in 9 cases only.

Gastrotomy was performed in one case only, and that to extract an extra-uterine fœtus.

It also appears from a late periodical publication, that there were admitted into the lying-in hospital at Paris, called Maison d'Accouchemens, between the 9th of December, 1799, and the 31st of May, 1809, 17,308 women, who gave birth to 17,499 children; of which number 16,286 were presentations of the vertex to the os uteri.

No.	Proportions.
215 were presentations of the feet - - - - -	1 to 81 $\frac{2}{3}$
296 the breech - - - - -	1— 59 $\frac{1}{3}$
59 the face - - - - -	1— 296 $\frac{1}{2}$
52 one of the shoulders - - - - -	1— 336 $\frac{1}{2}$
4 the side of the thorax - - - - -	1— 4374 $\frac{1}{3}$
4 the hip - - - - -	1— 4374 $\frac{1}{3}$
4 the left side of the head - - - - -	1— 4374 $\frac{1}{3}$
4 the knees - - - - -	1— 4374 $\frac{1}{3}$
4 the head, an arm, and the cord - - - - -	1— 4374 $\frac{1}{3}$
3 the belly - - - - -	1— 5833
3 the back - - - - -	1— 5833
3 the loins - - - - -	1— 5833
1 the occipital region - - - - -	1— 17499
1 the side, with the right hand - - - - -	1— 17499
1 the right hand and left foot - - - - -	1— 17499

We cannot form an estimate of the proportion of labours, with much accuracy, from the practice of individuals, as one man may, from particular circumstances, meet with a greater number of difficult cases, than is duly proportioned to the number of his patients. Thus Dr. Hagen of Berlin says, that out of 350 patients, he employed the forceps 93 times, and the crotchet in 28 cases; 26 of his patients died. Dr. Dewees again, of Philadelphia, says, that in more than 3000 cases, he has not met with one requiring the use of the crotchet.

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## CHAP. II.

### *Of Natural Labour.*

#### § 1. STAGES OF LABOUR.

PREVIOUS to the accession of labour, we observe certain precursory signs, which appear sometimes for several days, oftener only for a few hours before pains be felt. The uterine fibres begin slowly and gradually to contract or shorten them-

1 the head, and the feet . . . . .	1—	17499
2 the head, the hand, and forearm . . . . .	1—	8749½
37 the head and umbilical cord . . . . .	1—	473

Of this great number of women, 230 were delivered by art, the rest were natural births, being in the proportion of 1 to 76½; 161 were delivered by the hand alone, the children being brought by the feet; 49 were delivered by the forceps, either on account of the small dimensions of the pelvis, the falling down of the umbilical cord, or the wrong position of the head, when the woman was exhausted, or her life was in danger by convulsions, &c.; 13 were extracted by the crotchet after perforation of the head, on account of mal-conformation of the pelvis; in these instances the death of the child was first ascertained.

The casarean operation was performed in two cases, the diameter of the pelvis being only one inch six lines from sacrum to pubis.

In one, the section of the symphysis pubis was performed, the diameter of the pelvis from sacrum to pubis being only two inches and a quarter.

Gastrotomy was performed once, the fœtus being extra-uterine; the child weighed 8lb. 2oz.

selves, by which the uterus becomes tenser and smaller. It subsides in the belly, the woman feels as if she carried the child lower than formerly, and thinks herself slacker and less than she was before. For some days before gestation be completed, she in many cases is indolent and inactive, but now she often feels lighter and more alert. At the same time that the uterus subsides, the vagina and os uteri are found to secrete a quantity of glairy mucus, rendering the organs of generation moister than usual; and these are somewhat tumid and relaxed, the vagina especially becoming softer and more yielding. These changes are often attended with a slight irritation of the neighbouring parts, producing an inclination to go to stool, or to make water frequently, and very often griping precedes labour, or attends its commencement.

The intention of labour is, to expel the child and secundines. For this purpose, the first thing to be done, is to dilate, to a sufficient degree, the os uteri, so that the child may pass through it. The next point to be gained, is the expulsion of the child itself: and last of all, the foetal appendages are to be thrown off. The process may therefore be divided into three stages. The first stage is generally the most tedious. It is attended with frequent, but usually short pains, which are described as being sharp, and sometimes so severe, as to be called cutting or grinding. They commonly begin in the back, and extend toward the pubis or top of the thighs; but there is, in this respect, a great diversity with different women, or the same woman at different times. Sometimes the pain is felt chiefly or entirely in the abdomen, the back being not at all affected during this stage; and it is generally observed, that such pains are not so effective as those which affect the back. Or the pain produced by the contraction of the womb may be felt in the uterine region; and when it goes off, may be succeeded by a distressing aching in the back. In other cases, the pain is confined to the small of the back, and upper part of the sacrum; and is either of a dull aching kind, or sharp and acute, and, in some instances, is attended with a considerable degree of sickness, or tendency to

syncope. The most regular manner of attack, is for the pains to be at first confined to the back, descending lower by degrees, and extending round to the belly, pubis, or top and fore part of the thighs, and gradually stretching down the back part of the thighs, the fore part becoming easy; occasionally one thigh alone is affected. At this time also, one of the legs is sometimes affected with cramp. The duration of each pain is variable; at first it is very short, not lasting above half a minute, perhaps not so long, but by degrees it remains longer, and becomes more severe. The aggravation, however, is not uniform, for sometimes in the middle of the stage, the pains are shorter, and more trifling than in the former part of it. During the intermission of the pains, the woman sometimes is very drowsy, but at other times is particularly irritable and watchful. The pains are early attended with a desire to grasp or hold by the nearest object, and at the same time, the cheeks become flushed, and the colour increases with the severity of the pain.

The pains of labour often begin with a considerable degree of chillness; or an unusual shaking or trembling of the body, with or without a sensation of coldness. These tremors may take place, however, at any period of labour; they may usher in the second stage, and be altogether wanting during the first, or they may not appear at all, even in the slightest degree; or they may be present only for a very short time. They do not generally precede the uterine pain, but may be almost synchronous in their attack; in other cases, they do not appear until the pain has lasted for a short space of time; but whenever they do come on, it is usual for the uterine pain to be speedily removed. Hence it might be supposed, that they should materially retard labour, but this is far from being always the case. In degree, they vary from a gentle tremor to a concussion of the frame, so violent as to shake the bed on which the patient rests, and even to bear some resemblance to a convulsion. The stomach also sympathizes with the uterus during this stage, the patient complaining of a sense of oppression; sometimes of heartburn or sickness, or even of vomiting, which is considered as a good symptom,

when it does not proceed from exhaustion ; or of a feeling of sinking or faintness, but the pulse is generally good. When there is in a natural labour, a sudden attack of sickness, faintishness, and feeble pulse, the patient is generally soon relieved by vomiting bile. These symptoms, however, are often wanting, or attack at different periods of labour ; like the rigours, they may be absent during the greatest part of the first stage, or until its end, ushering in the second ; but in general, they are confined to the first stage, going off when the os uteri is fully dilated. In consequence, partly of those feelings, partly of the anxiety and solicitude connected with a state of suffering and danger, and partly from the pains being free from any sensation of bearing-down, the woman, during this stage, is apt to become desponding, and sometimes fretful. She supposes that the pains are doing no good ; that she has been, or is to be, long in labour ; that something might be done to assist her, or has been done, which had better have been avoided ; and that there is a wrong position of the child, or deficiency of her own powers.

When the pains of labour begin, there is an increased discharge of mucus from the vagina, which proceeds from the vaginal lacunæ, and from the os uteri. It is glairy, whitish, and possesses a peculiar odour. When the os uteri is considerably dilated, though sometimes at an earlier period, there is, in consequence of the separation of the decidua, a small portion of blood discharged, which gives a red tinge to the mucus.

The distension of the os uteri is often attended with irritation of the neighbouring parts, the woman complaining of a degree of strangury ; or having one or two stools with or without griping, especially in the earlier part of the stage. The pulse generally is somewhat accelerated.

The os uteri being considerably dilated, the second stage begins. The pains become different, they are felt lower down, they are more protracted, and attended with a sense of bearing-down, or an involuntary desire to expel or strain with the muscles ; and this desire is very often accompanied with a

strong inclination to go to stool. A perspiration breaks out, and the pulse, which during the first stage beat rather more frequently than usual, becomes still quicker; the woman complains of being hot, and generally the mouth is parched. Soon after the commencement of this stage, it is usual for the liquor amnii to be discharged. This is often followed by a short respite from pain, but presently the efforts are redoubled. Sometimes there is no cessation, but the pains immediately become more severe, and sensibly effective. The perinæum now begins to be pressed outward, and the labia are put upon the stretch. The protrusion of the perinæum gradually increases, but it is not constant; for when the pain goes off, the head generally recedes a little, and the perinæum is relaxed. Presently the head descends so low, that the parts are kept permanently on the stretch, and the anus is carried forward. Then the vertex pressing forward, the labia are elongated, and the orifice of the vagina dilated. The perinæum is very thin, much stretched, and spread over the head of the child. As the head passes out, the perinæum goes back over the forehead, becoming narrower, but still more distended laterally. If the perinæum did not move backward as the head moved forward, it would run a greater risk of being torn; and indeed, even in the most regularly conducted labour, a part of it is often rent. Delivery of the head is accomplished with very severe suffering; but immediately afterwards, the woman feels easy, and free from pain. In a very little time, however, the uterus again acts, and the rest of the child is expelled, which completes the second stage of labour. The expulsion of the body is generally accomplished very easily, and quickly; but sometimes the woman suffers several strong and forcing pains, before the shoulders are expelled. The birth of the child is succeeded, after a short calm, by a very slight degree of pain, which is consequent to that contraction which is necessary for the expulsion of the placenta. This expulsion is accompanied and preceded by a slight discharge of blood, which is continued, but in decreasing quantity, for a few days, under the name of the red lochia.

## § 2. DURATION OF THE PROCESS.

The duration of this process, and of its stages, varies not only in different women, but in the same individual in successive labours; for although some, without any mechanical cause, be uniformly slow or expeditious, others are tedious in one labour, and perhaps extremely quick in the next, and this variation cannot be foreseen from any previous state of the system. A natural labour ought to be finished within 24 hours after the first attack of pain, provided the pains be truly uterine, and are continued regularly; for occasionally, after being repeated two or three times, they become suspended, and the person keeps well for many hours, after which the process begins properly. In such cases, the labour cannot be dated from the first sensation of pain, nor deemed tedious. The greatest number of women do not complain for more than 12 hours, many for a much shorter period, and some for not more than one hour. Few women call the accoucheur, until, from the regularity and frequency of the pains, they are sure that they are in labour, and feel themselves becoming worse. As the celerity of the process cannot be previously determined, many women thus bear their children alone, becoming rapidly and unexpectedly worse. On an average, it will be found, that in natural labour, the accoucheur is not called above four hours previous to delivery.

The regularity and comparative length of the different stages is also various; but it will be generally observed, that when a woman has a natural labour protracted to its utmost extent, the delay takes place in the first stage; and in those cases where the second stage is protracted, the delay occurs in the latter end of that stage. In most cases, the first stage is triple the length of the second. The first stage may be tedious, from the pains not acting freely on the os uteri, or being weak and inadequate to the effect intended, or becoming prematurely blended with the second stage; that is to say, bearing-down efforts being made, before the os uteri be much dilated. Various circumstances may conspire to produce this delay, such as debility of the uterus, rigidity of its

mouth, premature evacuation of the water, improper irritation, injudicious voluntary efforts, &c. The second stage may be tedious, from irregularity of the uterine contraction, or from a suspension of the bearing-down efforts, or from the head not turning into the most favourable direction, or from the rigidity of the external organs.

These, and other causes, which will hereafter be considered, may not only protract the labour, but may even render it so tedious, as to remove it from the class of natural labours altogether. It is a general opinion, that a first labour is always more lingering than those which succeed. We should be led, however, to suppose, that parturition, being a natural function, ought to be as well and as easily performed the first time, as the fifth; the process not depending upon either habit or instruction. But we do find, that here, as in many other cases, popular opinion is founded on fact; for although in several instances, a first labour is as quick as a second, yet in general, it is longer in both its stages. This, perhaps, depends chiefly on the facility with which the different soft parts dilate after they have been once fully distended. Some have attributed the pain of parturition to mechanical causes, ascribing it to the shape of the pelvis, and the size of the child's head. But this is not the case, for in a great majority of cases, the pelvis is so proportioned, as to permit the head to pass with great facility. The pain and difficulty attending the expulsion of the child in natural labour, are to be attributed to the forcible contraction of the sensible fibres of the uterus, and to the dilatation of the os uteri and vulva, in consequence thereof. Women will therefore, *cæteris paribus*, suffer in proportion to the sensibility of the organs concerned, and the difficulty with which the parts dilate. In proportion as we remove women from a state of simplicity to luxury and refinement, we find that the powers of the system become impaired, and the process of parturition is rendered more painful. In a state of natural simplicity, women in all climates bear their children easily, and recover speedily<sup>1</sup>; but this is more especially the case in those countries where heat conspires to relax the fibres. The quality or quantity of the food has much

less influence than the general habit of life, upon the process of parturition. In a savage state, women, though living abstemiously, and often compelled to work more than men, bear children with facility; whilst in this country, women who live on plain diet are not easier than those who indulge in rich viands.

### § 3. OF EXAMINATION.

The existence and progress of labour, and the manner in which the child is placed, are ascertained by examination *per vaginam*. For this purpose the woman ought to be placed in bed, on her left side,\* with a counterpane thrown over her, if she be not undressed. The hand is to be passed along the back part of the thighs to the perinæum, and thence immediately to the vagina, into which the fore finger is to be introduced. It never ought to be carried to the fore part of the vulva, and from that back to the vagina. The introduction is to be accomplished as speedily and gently as possible, and the greatest delicacy must be observed. The information which we wish to procure is then to be obtained by a very perfect, but very cautious examination of the *os uteri*, and presenting part of the child, which gives no pain, and consequently removes the dread which many women, either from some misconception, or from previous harsh treatment, entertain of this operation.

When a woman is in labour, we should, if the pains be regular, propose an examination very soon after our arrival.

It is of importance that the situation of the child be early ascertained, and most women are anxious to know what progress they have made, and if their condition be safe. As it is usual to examine during a pain, many have called this

\* A standing or half-sitting position has been proposed by some, and may doubtless in certain diseases of the uterus, be proper, that it may, by its weight, come within reach. Sometimes in the early months of pregnancy, it is allowable from the same motives; but, during labour, it is not often that the uterus is so high that the examination cannot be performed in a recumbent posture.

operation "taking a pain;" but there is no necessity for giving directions respecting the proper language to be used, as every man of sense and delicacy will know how to behave, and can easily, through the medium of the nurse, or by turning the conversation to the state of the patient, propose ascertaining the progress of the labour. Some women, from motives of false delicacy, and from not understanding the importance of procuring early information of their condition, are averse from examination until the pains become severe. But this delay is very improper; for, should the presentation require any alteration, this is easier effected before the membranes burst, than afterwards. When the presentation is ascertained to be natural, there is no occasion for repeated examinations in the first stage, as this may prove a source of irritation, and should the stage be tedious, may be a mean of exciting impatience. In the second stage, the frequency of examination must be proportioned to the rapidity of the process.

In order to avoid pain and irritation, it is customary to anoint the finger with oil or pomatum; but unless this practice be used as a precaution to prevent the action of the morbid matter on the skin, it is not very requisite, the parts being, in labour, generally supplied with a copious secretion of mucus. It is usual for the room to be darkened, and the bed curtains drawn close, during an examination; and the hand should be wiped with a towel, under the bed-clothes, before it be withdrawn. The proper time for examining is during a pain; and we should begin whenever the pain comes on. We thus ascertain the effect produced on the os uteri, and, by retaining the finger until the pain goes off, we determine the degree to which the os uteri collapses, and the precise situation of the presenting part, which we cannot do during a pain, if the membranes be still entire, lest the pressure of the finger should, were they thin, prematurely rupture them.

An examination should never, if possible, be proposed or made whilst an unmarried lady is in the room, but it is always proper that the nurse or some other matron be present.

The existence of labour is ascertained by the effects of the pains on the os uteri; and its progress, by the degree to which it is dilated, and the position of the head with regard to different parts of the pelvis.

Before labour begins, the os uteri is generally closed, and directed backwards toward the sacrum. When we examine in the commencement of labour, the os uteri is to be sought for near the sacrum, at the back part of the pelvis, whilst between that spot and the pubis, we can pass the finger along the fore part of the cervix uteri. On this the presenting part of the child rests, so that, in natural labour, it assumes somewhat the shape of the head; and, for the sake of distinction, I shall call it the uterine tumour. In some, it is so firmly applied to the head, and so tense, that a superficial observer would take it for the head itself. In this case the labour often is lingering. This tumour, or portion of the uterus, is broad in the beginning of labour, but becomes narrower as the os uteri dilates, until at last it is completely effaced, the head either naked or covered with the membranes, occupying the vagina. The breadth of this portion of the uterus, therefore, as well as the examination of the os uteri, will serve to ascertain the state of the labour.

The os uteri gradually dilates by the pains of labour, but this dilatation is easier effected in some cases than in others. In some, though the pains have lasted for many hours, and have been frequent, the os uteri will be found still very little opened. - In others, a very great effect is produced in a short time; nay, we even find, that the os uteri may be partly dilated without any pain at all. We cannot exactly foretell the effect which the pains may have by any general rule.

We find, in different women, the os uteri in very opposite states. In some it is thick, soft, and protuberant; in others, thin and tubulated; sometimes it is not prominent, but the edges of the mouth are on the same plane, like the mouth of a purse; these edges may be thin or thick, and both these states may exist with hardness or softness of the fibre. In some cases, they seem to be swelled, as if they were œdema-

tous, and this state is often combined with œdema of the vulva, or it may proceed from ecchymosis. Now, of these conditions, some are more favourable than others; a rigid os uteri, with the lips either flat or prominent, is generally a mark of slow labour, for as long as this state continues, dilatation is tardy; a thick œdematous feel of the os uteri is also unfavourable; and usually a projecting or tubulated mouth, especially if the margin be thick and hard,\* is connected with a more tedious labour than where the os uteri is flat. In some cases of slow labour, the os uteri for many hours is scarcely discernible, resembling a dimple or small hard ring, perfectly level with the rest of the uterus. But although these observations may assist the prognosis, yet we never can form an opinion perfectly correct; for it is wonderful how soon a state of the os uteri, apparently unfavourable, may be exchanged for one very much the reverse, and the labour may be accomplished with unexpected celerity. Our prognosis therefore, should be very guarded. When the pains produce little apparent effect on the os uteri, when they are slight and few, and when the orifice of the uterus is hard and rigid, or thick and puckered during a pain, there is much ground to expect that the labour may be lingering; on the other hand, when the pains are brisk, the os uteri thin and soft, we may expect a more speedy delivery: but as in the first case, the unfavourable state of the os uteri may be unexpectedly removed, so in the second, the pains may become suspended or irregular, and disappoint our hopes. The os uteri seldom dilates equally in given times, but is more slow at first in opening than afterwards. It has been supposed, that if it require three hours to dilate the os uteri one inch, it will require two to dilate it another inch, and other three to dilate it completely. This calculation, however, is subject to great variation, for in many cases, though it require four hours to dilate the os uteri one inch, a single hour more may be sufficient to finish the whole process.

\* If the margin be thin and soft, the os uteri sometimes, in the course of an hour, loses its projecting form, and becomes considerably dilated.

The os uteri is, in the beginning of labour, generally pretty high up ; but as the process advances, the uterus descends in the pelvis, along with the head ; and, in proportion as it descends, the os uteri dilates, whilst the uterine tumour diminishes in breadth. Should the os uteri remain long high, even although it be considerably dilated, but more especially if it be not, there is reason to suppose that the labour shall be continued still for some time. On the other hand, should the uterus descend too rapidly, there may be a species of prolapsus induced, the os uteri appearing at the orifice of the vagina. This state is generally attended with premature bearing-down pains, and indicates a painful, and rather tedious labour.

The protrusion of the membranes, and discharge of the liquor amnii, ought to bear a certain relation to the advancement of labour. Whilst the os uteri is beginning to dilate, the membranes have little tension ; they scarcely protrude through the os uteri, until it be considerably opened. But in proportion as the dilatation advances, and the pains become of the pressing kind, the membranes are rendered more tense, protruding during a pain, and becoming slack, and receding when it goes off. In some cases, by examination, we find the membranes forced out very low into the vagina, like a segment of a bladder, tense and firm, during a pain, but disappearing in its absence. Sometimes, although the head be so high as not to touch the perinæum, the membranes protrude the perinæum, and the fæces are evacuated or pressed out, as if the head were about to be expelled. When the membranes burst, the head is in such cases often delivered in a few seconds ; but the pains may remit for a short time, and the woman be easier than formerly. The protrusion of the membranes, which has been described by some as constituting a part of a natural labour, is by no means an universal occurrence ; for in numerous instances the membranes protrude very little, and scarcely form a perceptible bag in the vagina. When the pains have acted some time on the membranes, pushing the liquor amnii against them, and especially when they become pressing, the

membranes burst, and the water escapes, sometimes in a considerable quantity; but in other cases, very little comes away, the head occupying the pelvis so completely, that most of the water is retained above it, and is not discharged until the child be born. If there be great irregularity in the degree to which the membranes protrude, there is no less in the period at which they break. In some cases, from natural feebleness or thinness, they break very early, and the liquor amnii comes away slowly. Sometimes they break in the middle or latter end of the first stage, in the commencement of the second, or not until the very end, when the head is about to be born. The opening is sometimes very large, and the head enlarging it, passes through it; at other times it is small, and the membranes are not perforated by the head, but they come along with it like a cap or cover. By examination, we ascertain the state of the membranes, and may be assisted in our judgment of the progress of the labour. When the membranes feel tense, and are protruded during a pain, we may be sure that the action of the uterus is brisk and good. When much water is collected beneath the head, forming a pretty large bag in the vagina; or when, during the pain, there is a tense protrusion of the membranes, though they be flat, forming a small segment of a large circle, we may expect, that if the pains continue as they promise to do, the membranes will soon burst, and the pains become more pressing. If during each pain, after the rupture, a quantity of water come away, it is probable, that whenever the uterus is pretty well emptied of the fluid, it will contract more powerfully. Should the membranes break when the os uteri is not fully opened, perhaps only half-dilated, we may, if there be a large discharge, expect a brisker action, and that the full dilatation of the os uteri will be soon accomplished; but if the water only ooze away, and the pains become less frequent, and not more severe, the labour may probably be protracted for some time.

In the first stage of labour, the head will be found placed obliquely along the upper part of the pelvis, with the vertex directed toward one of the acetabula. The finger can easily

ascertain the sagittal, and afterwards the lambdoidal suture; the central portion of the sagittal suture is the point from which we set out, and, if the finger is readily led to the angle formed by the posterior edges of the parietal bones, we may be sure that the presentation is favourable. If, on the other hand, we can feel the anterior fontanelle, the vertex is generally directed to the sacro-iliac articulation. When the pelvis is well formed, and the cranium of due size, the head may commonly be felt in every stage of labour; but there are cases, in which, even although the pelvis be ample, it is not easily touched for some time. Such instances, however, are rare; and whenever we are long of feeling the presentation, and do not discover a round uterine tumour, we may suspect that some other part of the child than the head presents. Even in the end of pregnancy, and long before labour begins, the head can usually be discovered resting on the distended cervix uteri; but different circumstances may for a time prevent it from being felt, the head perhaps in some cases, as from a fall for instance, being for a short time displaced towards one side.

In proportion as the head descends in the pelvis, the vertex is turned forward; so that, when the whole head has entered the pelvis, the face is thrown into the hollow of the sacrum, and the sagittal suture rests on the perinæum, whilst the occiput is placed under the symphysis pubis, or on its inside. This takes place earlier in one case than in another.

When the head comes to present at the orifice of the vagina, or passes a line drawn from the under edge of the symphysis pubis back to the sacrum, the perinæum and skin near the tuberosities of the ischia become full, as if swelled, but not tense. This at first proceeds from relaxation of the muscles, and some degree of descent of the vagina and rectum. Whenever this is felt, we may be sure that the head is descending; but although a few pains may distend the perinæum, it may yet be some hours before this takes place, the pains for all that time appearing to produce very little effect, although the pelvis be well formed. Should the perinæum become stretched, and the anus be carried forward a little dur-

ing the pain, we may expect that delivery is at hand. If the woman has already borne children, the child is sometimes delivered within a few minutes after the perinæum is first felt to become full.

When the pelvis is well formed, the head generally descends without much change of the scalp; but when it is contracted, or the head rests long on the perinæum, the scalp is either wrinkled or protruded like a tumour filled with blood.

By examination, we ascertain the presentation, and the progress which the labour has made; but in forming an opinion respecting the probable duration of the process, we must be greatly influenced by the state of the pains, and in part also by our knowledge of former labours, if the woman have borne many children. The different stages of labour are generally marked by a different mode of expressing pain. In the first stage, the pains are sharp, and the woman either moans or frets, or sometimes bears in silence. The second stage is marked by a sound, indicating a straining exertion, a kind of protracted groan, so that, by the change of the cry, a practitioner may often determine the stage of the labour. Sometimes in this stage, the woman clinches her teeth, or holds in her breath, so that she is scarcely heard to complain. In the moment of expelling the head, some women are quite silent, or utter a low groan, others scream aloud. When the pains in the first stage are increasing in frequency, in severity, and in duration, and when they are accompanied with a corresponding dilatation of the os uteri, and especially when it, together with the head, gradually descends, the prognosis is very favourable. When the pains, after the os uteri is considerably dilated, become forcing, with an inclination to void the urine or fæces, and when these pains are accompanied with a full dilatation of the os uteri, the head at the same time descending lower, and the vertex beginning to turn round, we may look for a speedy delivery. But if the pains in the first stage be weak and few, and occur at long intervals, or, though not unfrequent, if they last only for a few seconds, and especially, if at the same time the os uteri be high up, or hard, or thick, we may conclude that the pro-

cess is not likely to be rapid. If, when the os uteri is little dilated, there be an inclination to bear down, the labour is generally slow, and hence all attempts to press with the abdominal muscles are improper; for whether these be made voluntarily or involuntarily, they, during this stage, add to the suffering, fatigue the woman, produce a tendency to prolapsus uteri, so that, in some instances, the os uteri is forced to the orifice of the vagina, and render the labour always slow and severe.

When the head is brought so low as to protrude the perinæum, the pains generally become more frequent and severe, and very soon effect the expulsion. But if they be forcing, and propel the head considerably each time, but it recedes completely thereafter, it is likely that the delivery of the head will be difficult and painful; for in some cases, the external parts are long of yielding, and require repeated efforts to distend them before the head can safely be expelled.

Sometimes the pains, after beginning regularly and briskly, become suspended, or less effective, and this alteration cannot be foreseen. It is a popular opinion, that if a woman be not delivered within twelve hours after she is taken ill, the labour will become brisker at the same hour at which it began, that is to say, twelve hours after its commencement; and this opinion is, in many instances, countenanced by fact. In other cases, the labour becomes decidedly brisker six hours after its commencement. Most women begin to complain during the night, or early in the morning, and a great majority are delivered betwixt twelve at night and twelve o'clock noon.

#### § 4. CAUSES OF LABOUR.

Different attempts have been made to explain why labour commenced at the end of the ninth month of pregnancy. The mysterious power of numbers, the influence of the planets, the distension of the uterine fibres, the pressure of the child upon the developed cervix and os uteri, have all in succession been enumerated, as affording a solution of the question. It can

serve no good purpose to enter into the investigation. We know, that whenever the process of utero-gestation is completed, the womb begins to contract. If, by any means, this process could be protracted, then labour would be kept off; and, on the other hand, if this process be stopped prematurely, either from some peculiarity connected with it, by which it is completed earlier than usual, or, from being interrupted by extraneous causes, acting either on the uterus, or by killing the child, then contraction does very soon commence. The immediate cause of the delivery of the child has been attributed to efforts made by the fœtus itself, the expulsive force of the abdominal muscles, or the contraction of the uterus. The first is fully set aside, by our finding, that the fœtus, when dead is born *cæteris paribus*, as easily as when it is alive and active. That the muscles alone cause the expulsion of the child, is disproved, by observing, that in the early part of labour they are perfectly quiescent, and no voluntary effort made with them is attended with any good effect. That the delivery is in a great measure owing to the action of the uterus, is proved by observing, that the uterus contracts in proportion as the delivery advances, and when the child is born, it is found to be very greatly diminished in size. But we have a still more positive proof of this, in attempting to turn the child, for then we feel very powerfully the action of the uterus, and the efforts which it makes to expel its contents. It is not just, however, to consider the action of the womb itself, as the sole agent in parturition; for in the second stage, the abdominal muscles do assist in the expulsion, not only by supporting the uterus, and thus enabling it to contract better, but also directly, by endeavouring to force the uterus, and consequently its contents, down through the pelvis. Two purposes are intended by the uterine action; the first is to open the os uteri, the second to propel the fœtus through it. Whilst, then, the fibres of the uterus itself contract, those of the os uteri must dilate, and, in proportion as the fœtus advances through the pelvis, the uterine fibres must shorten themselves. Thus the uterine cavity is gradually diminished, so that the placenta can very easily, by a continuation of the

same process, be thrown off; and the uterine vessels having their diameter greatly lessened, hemorrhage is prevented after the separation of the placenta.

Parturition, then, is a muscular action, and we might in one view conceive that it should be most speedy and easy in those who possessed a powerful muscular system, and great vigour. But this is far from being the case, for the process is tedious or speedy, easy or difficult, according to the relation which the power bears to the obstacle to be overcome. Now in many weak and debilitated women, the parts very easily relax and dilate, and a very small power is required to complete the expulsion; whilst we often find, that those who possess a tense fibre, and great strength of the muscular system, accomplish the dilatation of the os uteri, not without much pain, and repeated efforts.

#### § 5. MANAGEMENT OF LABOUR.

Women in a state of nature make little preparation for their delivery, and conduct the process of parturition without much ceremony. They retire to the woods, or seclude themselves in a hut or bower, until they bear the child; after which, if the religious custom of their country do not require their separation for a time, they return to their usual mode of living.

In Europe, [and in a state of civilization generally] we find that the process of parturition is conducted with more care, and is supposed to require greater preparation. Different countries have different customs in this respect. In some, women are delivered upon a chair of a particular construction; in others, seated on the lap of a female friend. Some women use a little bed, on which they rest, until the process is completed; and others are delivered on the bed, on which they usually sleep. This last, for many reasons, is the best and most proper practice; but in order to prevent the bed from being spoiled, or wet with the liquor amnii or blood, and also from other motives of comfort, it is usual to make it up in a particular manner. The mattress ought to

be placed uppermost, and a dressed skin, or folded blanket, placed on that part of it on which the breech of the woman is to rest. The bed is then to be made up as usual; after which, a sheet folded into a breadth of about three feet is put across the under fold of the bed-sheet. This is intended to absorb the moisture; and after delivery, if not during labour, that part which is wet is to be drawn completely away, so that a dry portion may be brought under the woman. This arrangement is generally attended to by the nurse, whenever labour begins. When the pains begin, the woman generally dresses in dishabille; but when the process is considerably advanced, it is necessary to undress, and lie in bed. Some at this time put on a half-shift, that is to say, one that does not reach below the waist, so that it is not liable to be wet. Others are satisfied with having the shift pushed up over the pelvis, so as to be kept dry; its place, in either case, is supplied with a petticoat. These, and other circumstances relating to dress, and to the quantity of bed-clothes, must be determined by the woman herself, and the season of the year.

It is of consequence that the room be not overheated by fire, or the woman kept too warm with clothes. Heat makes her restless and feverish, adds to the feeling of fatigue, and often, by rendering the pains irregular or ineffective, protracts the labour. No more people should be in the room than are absolutely necessary. The nurse and one female friend are perfectly sufficient for every good purpose; and a greater number, by their conversation, disturb the patient, or by their imprudence, may diminish her confidence in her own powers, and also in her necessary attendants. The mind, in a state of distress, is easily alarmed; and therefore whispering, and all appearance of concealment, ought to be prohibited in the room.

If the woman be disposed to sleep betwixt the pains, she ought not to be disturbed, but allowed to indulge in repose. If she have not this inclination, and be not fatigued, cheerful conversation, upon subjects totally unconnected with her situation, will be very proper.

Women have seldom an inclination for food whilst they are

in labour; and, if the process be not long protracted, there is no occasion for it. If, however, the patient have a desire to eat, she may have a little tea or coffee, with dry toast, or a little soup, or some panado; but every thing which is heavy or difficult of digestion must be avoided, lest she be made sick and restless, or have her recovery afterwards interrupted. Even very light food is apt at this time to sour, and cause heartburn.

Stimulants and cordials, such as spiced gruel, cinnamon water, wines, and possets, were at one time very much employed, but now are deservedly abandoned by those who follow the dictates of nature. Given in liberal doses, they are productive of great danger, disposing to fever or inflammation after delivery; and in smaller doses, they disorder the stomach, and often, instead of forwarding, retard the labour. If however, the woman be weak, or the process tedious, then a small quantity of wine, given prudently, may be of considerable advantage.

Some women wish to keep out of bed as much as possible, in order that labour may be forwarded by walking about; others have the same desire, from feeling easier when they are sitting. In this respect, they may be allowed to please themselves, but they ought to be as much as possible out of bed, provided they do not feel tired.

The urine ought to be regularly and frequently evacuated; and for that purpose, the practitioner should occasionally leave the room. If the woman be costive, or the rectum contain fæces, a clyster ought always to be given early, which facilitates the labour. On the other hand, if the bowels be very loose, a few drops of tincture of opium may be given with much advantage.

It is immaterial in what posture the woman place herself during the first stage of labour; but in the second stage, when delivery is approaching, it is proper that she be placed on her side, and it is usual for her to lie on the left side, as this enables the practitioner to use his right hand. The knees are a little drawn up, and generally at this time kept separate by means of a small pillow placed between them. Many

women wish to have their feet supported, or pressed against by an assistant, and it is customary to give her a towel to grasp in her hand. This is either held by the nurse, or fastened to the bed post. We must, however, be careful that these contrivances do not encourage the woman to make too strong efforts to bear down.

When the woman is in bed, it is proper to have a soft warm cloth applied to the external parts, in order to absorb any mucus or water that may be discharged, and this is to be removed when it is wet.

Attempts to dilate the os uteri or the vagina, and the application of unctuous substances, to lubricate the parts, are now very properly abandoned by well instructed practitioners.

The membranes ought generally to be allowed to burst, by the efforts of the uterus alone, for this is the regular course of nature; and a premature evacuation of the water either disorders the process and retards the labour, or, if it accelerate the labour, it renders it more painful. I cannot, however, go the length of some, who say, that the evacuation of the water is always hurtful; for there are circumstances in which it may be allowable and beneficial. It is allowable when the os uteri is fully dilated, and the membranes protruded, perhaps even out of the vagina. In such a case, they would in a few pains at farthest give way; but by rupturing them we can take precautions to keep the person dry, and more comfortable than she would otherwise have been. Even if the membranes are not considerably protruded, if the os uteri be completely dilated no injury can arise from rupturing them, for they ought, in the natural course of labour, to give way at this time. But although the practice be not detrimental, yet it does not thence follow that it is always expedient; and it will be a useful rule to adhere to, that the seldomer we interfere in this respect in a natural labour, the more prudent shall our conduct be.

Examination ought, in the first stage of labour, to be practised seldom; but in the second stage we must have recourse to it more frequently; and, when the pains are becoming

stronger and the head advancing, we must not leave the bedside. At this time we should be prepared for the reception of the child. A pair of scissars, with some short pieces of narrow tape, must be laid upon the bed or chair, and a warm cloth or receiver must be at hand, or spread under the clothes, to wrap the child in. As the fæces are generally passed at this time involuntarily, a soft cloth is to be laid on the perinæum; and when the second stage of labour is drawing to a conclusion, the hand is to be placed on this, in order to prevent the rapid delivery of the head, and the consequent laceration of the perinæum. This is a point of very great importance, and which requires to be carefully considered by the practitioner. There are several arguments against this practice: for we should, *a priori*, conceive, that as parturition is a natural process, it ought not in any part to be defective, or to require the regulation of art. Next, we should strengthen this doctrine, by finding, that in the savage state, a lacerated perinæum is rarely discovered, and in all those women who are speedily delivered by themselves, the recto-vaginal septum is seldom torn. But on the other hand, the fact is ascertained beyond all dispute, that the perinæum is sometimes lacerated, notwithstanding these presumptive proofs against the occurrence of the accident. This being ascertained, it becomes our duty, however rare the case may be, to determine its causes, and prevent its occurrence in every instance; for we cannot exactly say who the unfortunate individuals may be, to whom it is to happen. We may decidedly say, that the perinæum is torn in consequence of distension; but in every delivery, the perinæum must be distended, and in some to a great degree. In proportion to the facility of the distension, and the ease with which the vagina dilates, is the risk of laceration diminished. It has, therefore, become a practical rule, to resist, with the hand placed on the perinæum, the delivery of the head, until the parts be sufficiently relaxed; and this pressure ought to be exerted over the whole tumour, but especially at the fourchette, for although the perinæum has been perforated by the head, which did not pass through the orifice of the vagina, yet usually, the rent begins at the four-

chette and proceeds backwards to a greater or less degree. In every case, the fourchette and a small part of the posterior surface of the vagina are lacerated, though the integuments of the perinæum remain sound. By firmly supporting the perinæum, and, at the same time, exhorting the woman not to force down during a pain, and thus retarding the delivery of the head until we feel the vulva, as well as the perinæum relaxing, we may generally prevent laceration, and therefore this accident will seldom if ever happen in the hands of a prudent practitioner. Still it is possible for the perinæum to be torn under good management. A little bit of it is not unfrequently lacerated, notwithstanding all our precaution; and although, in this slight degree, it is of no consequence, yet we thus see that art cannot completely prevent the accident. Sometimes the restlessness of the patient almost inevitably prevents the necessary precautions from being used;\* and it may happen, that the frame is so very irritable, that the perinæum unexpectedly lacerates at the time when it is supposed to be in a favourable state. As there must be some point where the resistance must stop, else the labour would be unnecessarily protracted, or perhaps even the uterus ruptured, it is possible that such resistance may be made, as generally is sufficient to prevent the accident, but which may not in some particular case, owing to the irritable state of the perinæum, be adequate to the intended purpose; or the power of the uterus may be so strong as to expel the head, in spite of every allowable resistance, and in some of these cases it is possible for the perinæum to be torn.

It is not sufficient that the practitioner support the perinæum, until the head is going to be expelled; he must continue to do so whilst it is passing out, for there is then a great strain on the part, as the forehead is passing over the perinæum, and even the face moving along it, may produce injury. After the head is delivered, it is still necessary to place the hand under the chin, and on the perinæum, for the

\* Dr. Denman, a most worthy and experienced practitioner, with a candour which does him honour, acknowledges, that from this cause the accident occurred in his own practice.

arm of the child comes next to press against this part, and may either tear it by pressure, or by coming out with a jerk. Farther, to prevent injury and avoid pain, the body of the child should be allowed to pass out in a direction corresponding to the outlet of the pelvis, that is to say, moving a little forwards. But there is no occasion that the child should be carried forward betwixt the thighs, for, in a natural labour, the back of the child is directed to the thighs; he can easily bend, and will naturally so incline himself in the delivery, as to take the proper direction. The last advice to be given respecting this stage of labour is, that as we retard rather than encourage the expulsion of the head, so we are not to accelerate the delivery of the body. Women in a state of pain call for relief, and expect that the midwife is to assist the delivery of the child; but no entreaties ought to make us hasten the expulsion of the head, and after that event, there is little inducement to accelerate the labour. Sometimes, in a few seconds, the child is expelled, but there may be a cessation of pain for some minutes. In the first case, we take care that the body is not propelled rapidly, and with a jerk: in the second, we attend to the head, examining that the membranes do not cover the mouth, but that the child be enabled to breathe, should the circulation in the cord be obstructed. There is no danger in delay, and rashly pulling away the child is apt to produce flooding and other dangerous accidents. Should there, however, be a considerable interval betwixt the expulsion of the head, and the accession of new pains, we may press gently on the belly, or pull the child slightly, so as to excite the uterus to contract. Or, should the woman have several pains without expelling the body of the child, it may be allowable gently to insinuate the finger, and bring down the shoulder; but even this assistance is rarely required, and on no account ought we to attempt the delivery by pulling the head. Sometimes a delay is produced by the cord being twisted round the neck; and in this case, all we have to do, is to slip it off over the head.

The child being born, a ligature is to be applied on the cord very near the navel, and another about two inches nearer the

placenta.(c) It is then to be divided betwixt them, and the child removed. The hand is next to be placed on the belly, to ascertain that there be not a second child ;(d) and the finger may, for the same purpose, be slid gently along the cord to the os uteri. The hand of an assistant should be applied on the abdomen, and gently pressed on the uterus, which may excite it to action, and prevent torpor. If the placenta be not expelled soon, the uterine region may be rubbed with the hand to excite the contraction of the womb. Immediately after the expulsion of the child, there is often a copious evacuation of water, which is sometimes mistaken by the woman for a discharge of blood. But hemorrhage never takes place so instantaneously, in such quantity. It is generally a minute or two, sometimes much longer, before flooding come on ; against the occurrence of this, we are to be on our guard.

The woman, after the delivery of the child, feels quite well,

(c) The ligature should not be applied, until the pulsation of the funis has ceased, or at least until the child has cried, that the new circulation now to commence may be thus properly established. Until this has taken place, the life of the child, according to Mr. White, is to be considered as merely fœtal, or as if it were yet *in utero*. Whilst there remains a pulsation of the arteries of the funis, it proves the existence of the fœtal life, and the existence of the fœtal life proves the imperfection of the animal life. Whilst the animal life, therefore, is imperfect, Mr. White lays it down as a rule, that the fœtal life ought not to be destroyed. The funis umbilicalis, therefore, should never be divided or tied, whilst there is any pulsation in its arteries. "By this rash inconsiderate method of tying the navel string, before the circulation in it is stopt, I doubt not (continues Mr. White) but many children have been lost, many of their principal organs have been injured, and foundations laid for various disorders." White on the Management of Pregnant and Lying-in Women, page 87.

Whilst on the subject of tying the funis, we may mention an observation of Sabatier, which is worthy of notice. He says that he has often known, in cases of congenital umbilical hernia, that the displaced intestines have protruded along the umbilical cord without much increasing its size, and have been tied by the ligature made on it, occasioning the death of the infant. *Medicine Operatoire*, Tom. I. p. 152.

(d) If a second child remain, we very distinctly feel the enlarged uterus between the pubis and umbilicus, and even above the latter, and not so much diminished in size as we should have previously supposed, but if there is no second child, we feel the uterus contracted into a small round ball, extending not far above the symphysis pubis.

and expresses, in the strongest language, the transition from suffering to tranquillity. But in a short time, generally within half an hour, one or two trifling pains are felt, and the placenta is expelled, which completes the last stage of parturition; and when the process goes on regularly, nothing is required in this stage, except watchfulness, lest hemorrhage supervene.

But it sometimes happens, that the placenta does not come away so early or so readily as we expect. It may be retained for many hours, or even for some days. This retention can be caused by preternatural adhesion of the placenta, or by the uterus contracting spasmodically round the placenta, forming a kind of cyst, in which it is contained; or the uterus may not contract on the placenta so strongly as to expel it. Some, from a confidence in the powers of nature, have inculcated as a rule of conduct, that unless flooding take place, the placenta ought not to be extracted. Others have, with equal zeal, advised it to be brought away immediately after the birth of the child. The safest practice seems to lie betwixt the two extremes. To leave the expulsion of the placenta altogether to nature, is a step attended with great danger; for as long as it is retained, we may be sure that the uterus has not contracted strongly and regularly. If then, in these circumstances, the placenta should be partially or completely detached, hemorrhage is very likely to occur. If it still adhere to the uterus, the risk of hemorrhage certainly is diminished, for those vessels alone, which opened on the decidua, can be exposed; but we have no security that this adhesion shall remain universal for any given time. As long, then, as the placenta is retained, the woman is never free from the risk of flooding. In many cases, she has died from this cause before the placenta was expelled; or if, after a long delay, the placenta has come away, its exclusion has sometimes been followed by fatal hemorrhage.\* But this, although

\* Mr. White, has, in his *Treatise on the Management of Pregnant and lying-in women*, p. 507, related several cases where the practice of leaving the placenta to be expelled by nature alone, was productive of fatal hemorrhage; and in one instance, this event took place, although the placenta was at last expelled.

a dreadful accident, is not the only one arising from retention of the whole or part of the placenta. For great debility, constant retching, and fever, are often produced by this cause, and may ultimately carry off the patient.(e) It is therefore not without great reason, that women are anxious for the expulsion of the placenta; and this prejudice may have a good effect in operating against the conceits of speculative men, who suppose that nature is, in every instance, adequate to the accomplishment of her own purposes.

On the other hand, daily experience must convince every one, that there is no occasion for extracting the placenta immediately after the birth of the child, for it is usually expelled, with perfect safety within forty minutes after the child is delivered. Nay, we find that the speedy extraction of the placenta is directly hurtful; both as it is painful, and also as it is sometimes followed by uterine hemorrhage, or, if rashly performed, by inversion of the womb. The practice then, I think, may be comprised in two directions: First, that we ought never to leave the bed-room, until the placenta be expelled; and secondly, that if it be not excluded in an hour after delivery, we ought to extract it. This point being adjusted, it is next to be enquired, how the retention is to be prevented, and, if not prevented, how the placenta is to be extracted. With regard to the first question, it may be answered, that the placenta will be less apt to be retained, if the expulsion of the child be conducted slowly, and the uterus made to contract fully upon it. As to the mode of extracting the placenta, we can be at no loss, if we recollect that the expulsion is accomplished by the contraction of the uterus. Our object, then, is to excite this when the placenta is re-

(e) The celebrated Ruysch, we are told, was the first to abandon the absurd practice of hasty extraction of the placenta, enlightened, no doubt, by his superior anatomical knowledge. Dr. Hunter in Great Britain, fully pointed out its impropriety. He however erred on the other extreme;

"*Incidit in Scyllam cupiens vitare Charybdim.*"

Teaching that nature unassisted was adequate to the expulsion of the placenta in every case, he never interfered; but experience, says Dr. Hamilton, soon taught him the error of this practice: for by suffering the placenta to remain too long, he lost five patients of rank in one year.

tained, in consequence of the womb not acting strongly. The hand is to be slid slowly and cautiously into the uterus, which is often sufficient to make it contract ; but if it do not, the hand is to be moved a little, or pressed gently on the placenta, at the same time that we pull very slightly by the cord, or lay hold of the detached placenta with our hand, and with caution extract it slowly. This requires no exertion, for the uterus is pressing it down, and, if any force be used, we do harm. Attempts to bring away the placenta, by pulling strongly at the cord, whether the hand be introduced into the uterus or not, are always improper. If persisted in, they generally end, either in the laceration of the cord, or the inversion of the uterus.

There are two circumstances, however, under which the placenta may be retained, which require<sup>d</sup> some modification of the practice. The first is, when the placenta is retained by spasm. In this case, when the hand is conducted along the cord through the os uteri, the placenta is not perceived, but it is led by the cord to a stricture, like a second, but contracted os uteri, beyond which the placenta is lodged. This contraction must be overcome before the placenta can be brought away, which may be accomplished by gradual and continued attempts to introduce one, two, or more fingers through it ; and these, if cautiously made, are perfectly safe. It will, however, be observed, that the uterus at short intervals contracts, which is accompanied with pain ; but this contraction is confined to the stricture alone, the cavity of the womb not being lessened by it, and during this state all attempts to dilate the aperture are hurtful. We must be satisfied with keeping the fingers in their place, to preserve the ground we have gained. Opiates have been proposed to remove this spasm, and render the introduction of the hand unnecessary ; they seldom, however, succeed alone, but given in a full dose may make the manual attempt more easy. Sometimes the sudden application of a cloth, dipped in cold water, to the belly, has the same effect. The second circumstance to which I alluded is, adhesion of the placenta, which usually is only partial. This may occur with or without a change of struc-

ture, but in general the structure is more or less altered, the adhering part being denser than usual, and sometimes almost like cartilage. The separation of the adhering portion should not be attempted hastily, nor by insinuating the finger between it and the uterine surface. It is better to press on the surface of the placenta, so as thus to excite the uterine fibres to contract more briskly at the spot; or by gently rubbing, or, as it were, pinching up the placenta between the fingers and thumb, it may be separated. If, however, the adhesion of the part of the placenta be very intimate, we must not, in order to destroy it, scrape and irritate the surface of the uterus, but ought rather to remove all that does not adhere intimately, leaving the rest to be separated by nature<sup>1</sup>. But in taking this step, we are not to proceed with impatience, nor to attempt to bring away the non-adhering portion, until a considerable time has elapsed, and cautious efforts have been made to remove the entire placenta; thus satisfying ourselves of the existence of an obstinate and intimate union. Cases, where this conduct is necessary, are very rare, and when they do occur, there is usually an induration of the adhering part. It is generally thrown off in a putrid state in forty-eight hours. Sometimes the placenta adheres when it is unusually tender and soft, and then we must, with peculiar care, avoid hasty efforts, by which the placenta would be lacerated, and part left behind, which would be hurtful afterwards; whereas by a little more patience, and gentle pressure on the surface of the placenta, the uterus might have been excited to throw the whole off.

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### CHAP. III.

#### *Of Premature Labour.*

WHEN a woman bears a child in the seventh or eighth months of pregnancy, she is said to have a premature labour; and this process forms a medium between abortion and natural labour.

In some cases, the uterus is fully developed before the usual term of gestation, and then contraction commences; but, in a great majority of instances, premature labour proceeds from accidental causes, exciting the expulsive action of the uterus, before the cervix and os uteri have gone through their regular changes. The cervix must, therefore, be expanded by muscular action, before the os uteri can be properly dilated; and this preparatory stage is generally marked by irregular pains, and not unfrequently by a feverish state, preceded by shivering. A feeling of slackness about the belly, with different anomalous sensations, often accompany this stage of premature labour. When the cervix is expanded, then the os uteri begins to dilate, and this part of the process is often more tedious than the same period of natural labour, and generally as painful. It is also frequently attended with a bearing-down sensation. The second stage of labour is usually expeditious, owing to the small size of the child. The decidua being thicker than at the full time, the protrusion of the membranes is attended with more sanguineous discharge; and if the woman move much, or exert herself, considerable hemorrhage may take place. The third stage is likewise slow, for the placenta is not soon thrown off. In the last place, spasmodic contraction of the uterus is more apt to take place in all the stages of premature than of natural labour.

A variety of causes may excite the action of the uterus prematurely, such as distension from too much water; or the death of the child, which is indicated by shivering, subsidence of the breasts, cessation of motion, and of the symptoms of pregnancy; or the artificial evacuation of the liquor amnii; or violent muscular exertion; or drugs acting strongly on the stomach and bowels; or passions of the mind; or acute diseases; or rigidity of the uterine fibres. Certain general conditions of the system render the operation of these causes more easy, such as plethora, debility, and great irritability. Premature labour is often preceded by severe shivering, during which, or immediately before it, the child dies, and in some time thereafter pains come on. It is worthy of notice,

that a much larger proportion of premature labours are preternatural, than of labours at the full time.

A tendency to premature labour is to be prevented by the means pointed out when treating of abortion. I have only to add, that when the abdomen is tense and hard, or painful, indicating a rigidity of the uterine fibres, or of the abdominal muscles, tepid fomentations, gentle laxatives, and repeated small bleedings, are useful.

When a woman is threatened with premature labour, we ought, unless there be very decided marks of the death of the child, to endeavour to check the process, which is done by exhibiting an opiate, keeping the patient cool and tranquil, and removing any irritation which may exist. If she be plethoric, or the pulse be throbbing, blood is to be detracted.

When labour is established, it is to be conducted much in the same way with parturition at the full time; but the following observations will not be improper. The patient must avoid much motion, lest hemorrhage be excited. Frequent examination and every irritation are hurtful, by retarding the process, and tending to produce spasmodic contraction. If this contraction take place, marked by paroxysms of pain referred to the belly or pubis, little or no effect being produced on the os uteri, a full dose of tincture of opium should be given, after the administration of a clyster. Severe pains, with premature efforts to bear down, and a rigid state of the os uteri, require venesection, and afterwards an opiate. The delivery of the child is to be retarded, rather than accelerated in the last stage, that the uterus may contract on the placenta. This is farther assisted, by rubbing gently the uterine region after delivery. If the placenta be long retained, or hemorrhage come on, the hand is to be gently introduced into the uterus, and pressed on the placenta, to excite the fibres to throw it off. We should not rashly attempt to remove it, for we are apt to tear it; neither are we to pull the cord, for it is easily broken. In those cases where premature labour is connected with redundancy of liquor amnii, I think it useful to introduce the hand immediately on the de-

livery of the child, for I have observed, that the placenta is apt to be retained by irregular contraction. We do not instantly extract the placenta, but it is desirable to get the hand in contact with it before the circular fibres contract. Great attention is to be paid to the patient for some days after delivery, as she is liable to a febrile affection, which may be either of the inflammatory type, or of the nature of weed, to be afterwards noticed.

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## CHAP. IV.

### *Of Preternatural Labour.*

VARIOUS signs have been enumerated, by which it was supposed, that malposition of the child might be discovered antecedent to labour. An unusual shape of the abdomen; some peculiar feeling, of which the mother is conscious, and which she has not felt in any former pregnancy; greater pain or numbness in one leg than in the other; a sensation of the child rising suddenly towards the stomach; have all been mentioned as indicating this, but are all, even when taken collectively, uncertain tokens. We cannot determine the presentation, until labour has begun. In a great majority of instances, the head, during the end of gestation, may be felt resting on the cervix uteri, but, in repeated instances, I have not been able to distinguish it in a pregnancy which ended in natural labour. Sometimes, in consequence of a fall, or other causes, the head seems to recede, but afterwards returns to its proper position. When labour begins, we may generally distinguish the head by its proper character; but, if it lie high, and especially if the pelvis be deformed, we may not find it always easy to ascertain the presentation at a very early period. In such cases, it is of great consequence to preserve the membranes entire. When the head does not present, the presentation is generally more

distant, and longer of being distinctly ascertained,\* the lower part of the uterus is more conical, and the tumour formed by the cranium cannot be felt through the membranes or cervix uteri: when the finger touches the part through the membranes, it very easily recedes, or seems to rise up. If the child lie more or less across the uterus, the os uteri is generally long of being fully dilated, the membranes protrude like a gut, and sometimes, during the pains, the woman complains of a remarkable pushing against the sides. The pains are severe, but in cross presentation, she is sensible that they are not advancing the labour.

It is a fact well ascertained, that although the head have been felt distinctly in the commencement of labour, yet when the membranes break, it may be exchanged for the shoulder,† or some other part. On this account, as well as for other reasons, it is always proper to examine immediately after the membranes have given way.

#### ORDER 1. PRESENTATION OF THE BREECH.

The breech is distinguished by its size and fleshy feel, by the tuberosity of the ischia, the shape of the ilium, the sulcus between the thighs, the parts of generation, and by the discharge of meconium, which very often takes place in the progress of labour.‡ After the breech has descended some way into the pelvis, the integuments may become tense or swelled, so as to make it resemble the head. Before the

\* When the presentation is long of being felt, we have been advised to examine the woman in a kneeling posture, or even to introduce the hand into the vagina, and rupture the membranes. The last advice is sometimes useful, as it enables us, if the presentation require it, to turn the child at a time when it can be easily done. But this is not to be hastily practised, nor adopted till the os uteri be well dilated.

† I have been informed of a case, where the shoulder was exchanged for the head, and Joerg seems to have met with the same circumstance. *Mist. partus*, p. 90.

‡ A discharge of liquor amnii, apparently coloured with meconium, is no proof that the breech presents, neither is it a sign that the child is dead.

membranes burst, the presentation is very mobile, and bounds up readily from the finger.

Many have advised, that when the breech presented, the feet should be brought down first; but the established practice now is, when the pelvis is well formed, and other circumstances do not require speedy delivery, to allow the breech to be expelled without any interference, until it has passed the external parts.

The breech, and consequently the body of the child, may vary in its position with regard to the mother; (*f*) but there are chiefly two situations requiring our attention, because the rest are ultimately reduced to these. First, where the thighs of the child are directed to the sacro-iliac junction of the pelvis; and secondly, where they are directed to the acetabulum. In either of these cases, delivery goes on with equal ease, until the head comes to pass. Then, if the thighs have been directed to the fore part of the pelvis, the face will also be turned toward the pubis, and cannot clear its arch so easily as the vertex.

When the thighs are directed to the back part of the pelvis, we find that the process of delivery is as follows: The breech generally descends obliquely, one tuberosity being lower

(*f*) Baudelocque has divided the presentations of the breech into four positions. In the

1st. The child's back is towards the mother's left side, and a little forward. But in proportion as it descends, its greatest breadth becomes parallel to the *antero-posterior* diameter of the inferior strait; the left hip placing itself under the pubes and the right before the sacrum.

2nd. The child's back is towards the right side of the uterus, and a little forward; the right hip placing itself under the arch of the pubes, the left being turned towards the sacrum.

3rd. The spine of the child's back is turned directly towards the umbilicus of the mother. Although it is allowed seldom to descend in this position.

4th. The spine of the child is towards the sacrum of the mother, and its abdomen towards the anterior and middle part of the uterus of the mother. As it descends, the breadth from one hip to the other becomes parallel to one of the oblique diameters of the pelvis.

than the other. The lowest one follows the same turns as the vertex does in natural labour, and observes the same relation to the axis of the brim and outlet of the pelvis. The breech is expelled with one side to the symphysis of the pubis, and the other to the coccyx; and after the presenting tuberosity protrudes under the arch of the pubis, the other clears the perinæum, like the face, in natural labour. Whilst the breech is protruding, it gradually turns a little round, so that the shoulders of the child come to pass the brim diagonally, the diameter from the acetabulum to the sacro-iliac junction being the greatest. The breech being delivered, a continuance of the pains pushes it gradually away, in the direction of the axis of the outlet, until the legs come so low as to clear the vagina. When this takes place, the head is generally passing the brim obliquely, the face being turned toward the sacro-iliac junction; and most frequently the arms pass along with it, being laid over the ears. They then slip down into the vagina, by the action of the uterus, and the head alone enters the cavity of the pelvis. The face turns into the hollow of the sacrum, and the chin tends toward the breast of the child. Then it clears the perinæum, which slips over the face, and the vertex comes last of all from under the pubis. If, however, the chin be folded down on the breast before the head has descended into the pelvis, then, from the unfavourable way in which it enters the brim, there may be some difficulty to the passage, for it in some respects resembles a presentation of the face. The hand should be introduced, and the face pressed up. In one case, Dr. Smellie found so much difficulty, that he applied the crotchet on the clavicle.

Now the management of this labour is very simple. Whilst the breech is coming forth, the perinæum is to be supported, and nothing more is to be done till the knees are so low as to be on a line with the fourchette. If they do not naturally bend, and the feet slip out, the finger of one hand is to be employed to bend the leg gently, and bring down the foot; the knee, in this process, pressing obliquely on the abdomen

of the child. But whether the legs be expelled naturally, or be brought down, we must carefully protect the perinæum, lest it should be torn by a sudden stroke of the leg in passing. Next, the cord is to be pulled gently down a little, to make the circulation more free. Thirdly, we attend to the arms; if these do not descend by the natural efforts, we introduce a finger, and gently bring down first one, and then the other, using no force, lest the bone should break. The perinæum is also to be guarded, to prevent a slap of the arm from injuring it. Fourthly, if the head do not directly turn down, the finger is to be carried up, and placed upon the chin or in the mouth, in order gently to depress it toward the breast, and this is generally sufficient. To guard the perinæum, the hand must be applied on it, and the body of the child moved near the thighs of the mother, that the vertex may more readily rise behind the pubis whilst the face is passing. If the body be, on the contrary, removed farther from the mother, and nearer the operator, the head can neither pass so easily into the pelvis, nor out from the vagina. In a natural labour, after the head is expelled, the whole body should be allowed to be slowly born by the efforts of the womb alone. But in breech cases, should the process, after the breech is expelled, be slow, the delivery of the body and head must by the means I have related, be accelerated, lest the umbilical cord suffer fatal compression. The first symptom of danger is a convulsive jerk of the body, and if the head be not speedily brought down, the child will be lost. Should delay inevitably arise, we must try to bring the cord to the widest part of the pelvis. But even although all pressure could be removed, the child cannot live long, if it be not delivered, as the function of the placenta is soon destroyed, that organ being often entirely detached from the womb, following the head whenever it is born.

When the thighs, in breech cases, are directed to the pubis or acetabulum, then the face cannot turn in to the hollow of the sacrum. It rests for some time on the pubis, and it comes out with difficulty under the arch; for in breech and footling cases, the face is generally born before the vertex.

In order to prevent this difficulty, it will, as soon as the breech is expelled and the feet are delivered, be proper to grasp the breech, and slowly endeavour to turn the body round ; but, should this not succeed, or not have been attempted till the shoulders have come down, and the head is about to pass the brim, the practice is dangerous, and the neck may be materially injured. It is, in this case, better to introduce a finger, and press with it on the head itself, endeavouring thus to turn the chin from the acetabulum to the sacro-iliac junction of the same side. If the position be not rectified, then we assist the descent by depressing the chin, and gently bringing it under the pubis ; and this may be facilitated by pressing the vertex upward and backward, and making it turn up on the curve of the sacrum, to favour the descent of the face. We must be careful of the perinæum.

When the pelvis is contracted or deformed, it will be prudent, at an early stage of the labour, to bring down the feet. But if this have been neglected, then, should the difficulty of delivery, or the length of time to which the labour is protracted, require it, a blunt hook, or a soft ribband has been insinuated over one of the groins, and the breech thus extracted ; but the forceps may be applied with much more advantage. When the resistance is slight, the insinuation of the fingers over the groin, may sometimes enable us to use such extracting force, as at least excites the uterus more briskly to expel. Should the head not easily follow the body, we must not attempt to extract it by pulling forcibly at the shoulders, as we may thus tear the neck, and leave the head in utero.\* The cord is, first of all, to be freed as much as possible from compression ; then we gently depress the shoulders, in the direction of the axis of the brim, at the same

\* La Motte, Chapman, Smellie, and Perfect, give examples of the head being left in utero without the body, and the body without the head. There are chiefly two sources of danger, the first and most immediate is uterine hemorrhage ; the second is the consequence of putrefaction, which produces sickness, nausea, fever, and great debility. The head may be extracted, by fixing a finger in the mouth, or by the crotchet, with or without perforation.

time that we with a finger act upon the chin. Should this not succeed, we must apply the finger over the head, and depress in the proper direction. If this fail, the only resource is to open the cranium above or behind the ear, and fix a hook in the aperture; but this is not to be done until we have fully tried other means, and by that time the child will be dead.

When the breech presents, and parturition is tedious, the parts of generation are often swelled and livid. When the parts are merely turgid a little, and purple from congestion of venous blood, nothing is necessary to be done. But when inflammation takes place, it is more troublesome, for being of the low kind, it is apt to end in gangrene. Fomentations are useful, but often spirituous applications succeed best.

## ORDER 2. OF THE INFERIOR EXTREMITIES.

Presentation of the feet is known, by there being no rounded tumour formed by the lower part of the uterus.(g) The membranes also protrude in a more elongated form than when the head or breech present. The presenting part, when touched during the remission of the pain, is felt to be small,

(g) Baudelocque distinguishes four principal positions of the feet, to which he considers all the rest may be referred. Of these four positions he constitutes as many species of labour. In the

1st Position, the heels answer to the left side of the pelvis, and a little forward; the toes to the right side, and backward, nearly opposite the sacro-iliac symphysis. Above that symphysis are placed the breast and face; while the back is situated under the anterior and left lateral part of the uterus.

In the 2nd position, the heels are towards the right side of the *pelvis*, and the toes to the left and a little backward. The *trunk* and head are so situated, that the breast and face answer to that part of the *uterus* which is over the left *sacro-iliac symphysis*, and the back to the anterior and right lateral part of that *viscus*.

In the 3rd position, the heels are turned towards the *pubes*, and the toes to the *sacrum*. The child's back is under the anterior part of the *uterus*, and its breast answers to the *lumbar vertebræ* of the mother.

The 4th position is exactly the reverse of the 3d; the child's back and heels are towards the posterior part of the *uterus*, while the toes, the face and breast, are under its anterior part.

and affords no resistance to the finger. When the membranes break, we may discover the shape of the toes and heel, and the articulation at the ankle. Sometimes both the feet and the breech present. Two circumstances contribute to an easy delivery: first, that the toes be turned toward the sacro-iliac junction of the mother; and secondly, that both feet come down together. The best practice is, to avoid rupturing the membranes till the os uteri be sufficiently dilated; then we grasp both feet, and bring them into the vagina; or, if both present together at the os uteri, we may allow them to come down unassisted. In either case, we do not accelerate the delivery till the cord is in a situation to suffer from pressure, that is, till the knees are fully protruded, and the thick part of the thighs, near the breech, can be felt; then, if the face be towards the belly of the mother, we grasp the thighs, and gently turn the body round. The management is the same as in breech cases. There is little danger of the feet of two different children being brought down together, as twins are included in separate membranes. But as the case is possible, it is proper to attend that the feet be right and left.

Sometimes a knee and foot, or the knees alone, present; (*h*) and as they form a larger tumour than the feet, they may at first be taken for the breech or the head. Generally only one knee presents, and it lies obliquely, with its side on the os uteri. It is known by its shape, and the flexure of the joint. Some advise that the case should be left altogether to nature, but it is often advantageous to bring down the feet.

(*h*) Baudeloeque distinguishes four principal positions of the knees also.

In the 1st position the child's legs, which are always bent when the knees present, are towards the mother's left side, and the thighs towards the right side.

In the 2d, the thighs answer to the left side of the *pelvis*, and the legs to the right.

In the 3rd, the anterior part of the thighs is turned towards the sacrum of the mother, and the legs are under the *pubes*.

In the 4th it is the reverse, the child's thighs being behind the *pubes* of the mother, and the legs placed against the *sacrum*.

## ORDER 3. OF THE SUPERIOR EXTREMITIES.

When the shoulder or arm presents, the case has the general character of preternatural presentations.<sup>(i)</sup> The round tumour, formed by the head in natural labour, is absent, whilst we can ascertain the shape and connection of the arm and shoulder. A shoulder presentation can only be confounded with that of the breech. But in the former case, the shape of the scapula, the ribs, the sharpness of the shoulder joint, and the direction of the humerus, together with our often feeling in our examination either the hand or neck, will be distinguishing marks. In the latter, the rounder shape and greater firmness of the ischium, the size of the thigh, its direction upwards, and its lying in contact with the soft belly, the spine of the ilium, the parts of generation, the size of the tuberosity of the ischium, and the general shape of the back parts of the pelvis, contribute with certainty to ascertain the nature of the case.

The hand and arm may present under different circumstances. The original presentation may have been that of the shoulder, but the arm may have, in the course of the labour been expelled; or the hand may rest on the os uteri, before

(i) The presentations of the shoulder are divided into four species by Baudelocque. In the

1st, The side of the neck rests on the edge of the *os pubis*, and the side of the breast over the *sacrum*, so that the fore part of the breast is towards the left *iliac fossa*, when the right shoulder presents, and towards the right *iliac fossa* when it is the left shoulder.

In the second position, the side of the neck is over the superior edge of the *sacrum*, and the side, properly so called, is over the *pubes*; the breast answers to the right *iliac fossa*, when the right shoulder presents and *vice versa*.

In the third, the neck and the head rest on the left *iliac fossa*, while the side and the hip are over the right; so that the back is placed transversely under the anterior part of the *uterus* when it is the right shoulder, and on the posterior part of that viscus, when it is the left.

The child is also placed transversely in the fourth position of the shoulder, but the head lies in the right *iliac fossa*, and the lower part of the trunk over the left; the breast is under the anterior part of the *uterus* when it is the right shoulder, and over the *sacrum* when it is the left.

the membranes have broken; or the fore arm may, for a length of time, lie across the os uteri, the hand not being protruded for some hours. Sometimes both hands are felt at the os uteri, and even both arms may be expelled into the vagina; but in most cases this does not happen, unless an improper conduct be pursued. In some rare instances, the hands of twins have been found presenting together, both sets of membranes having given way; it is more common to find both the hands and feet of the same child presenting; and this, next to the presentation of the feet alone, is the easiest case to manage.\* It is not uncommon, in this case, to find the cord presenting at the same time, and then, by delay, the child may be lost.

In most cases where the superior extremities present, the feet of the child are found in the fore part of the uterus, toward the navel of the mother. But their situation may be known, by examining the presentation. If we feel the shoulder, we know, that if the scapula be felt toward the sacrum, the feet will be found toward the belly. If the arm be protruded into the vagina, the palm of the hand is found in pronation, directed toward the side where the feet lie. It is easy to know which hand presents. If we examine with the right hand, we shall find, that if the palm of the child's hand be taken into ours in a state of pronation, the thumb of the right hand, or the little finger of the left hand, will correspond to our thumb.

In these preternatural presentations, the ancients were acquainted with the practice of turning, and delivering the child by the feet. But their remarks on this subject formed no general rule of conduct; on the contrary, practitioners were almost invariably in the habit of endeavouring to remove the presentation, and to bring the head to the os uteri. Paré was among the first who advised turning as a general practice; but even his pupil Guillimeau disregarded the rule,

\* If the uterus be firmly contracted, the liquor amnii having been all evacuated, it may sometimes be necessary to carry the hand up to the knees, to change the situation.

and left it to Mauriceau to enforce it, both by reasoning and practice.\*

We should be careful not to rupture the membranes prematurely; and more effectually to preserve them entire, we must prevent exertion, or much motion on the part of the mother. As soon as the os uteri is soft, and easily dilatable, the hand should be introduced slowly into the vagina, the os uteri gently dilated, and the membranes ruptured. The hand is then to be immediately carried into the uterus, and upwards until the feet are found. Both (*k*) feet are to be grasped betwixt our fingers, and brought down into the vagina, taking care that the toes are turned to the back of the mother. The remaining steps have been already described. This operation is not very painful to the mother; it is easily accomplished by the accoucheur, and it is not more hazardous to the child than an original presentation of the feet. But it is necessary in order to render this assertion correct, that the operation be undertaken before the liquor amnii be evacuated; and it is of importance to fix upon a proper time. We are not to attempt the introduction of the hand whilst the os uteri is hard and undilated; this is an axiom in practice; on the other hand, we are not to delay until the os uteri be dilated so much, as to be apparently sufficient for the passage of a bulky body. In the cases now under consideration, the os uteri does not dilate so regularly, and to so great a degree, before the membranes break, as when the head presents. If we wait in this expectation, the membranes will give way before we are aware. If the os uteri be dilated to the size of half a crown, thin and lax, the delivery ought

\* Mauriceau justly observes, that although, after much fatigue, the head can be brought to the os uteri, the woman may not have strength to finish the delivery.—In a case mentioned by Dr. Smellie, the patient died of flooding.—Joerg still admits the propriety of bringing the head, when it is nearer than the feet, to the os uteri, or the fœtus is so placed, that the feet cannot without difficulty and danger be brought down.

(*k*) It is not absolutely necessary that both feet should be found and grasped, in the first instance; it will be sufficient to find and bring down one, if both cannot be easily reached, the second foot, with proper management, (to be hereafter directed) will soon follow.

not to be delayed, for every pain endangers the rupture of the membranes. If they do give way, we are immediately to introduce the hand, and will still find the operation easy, for the whole of the water is not discharged at once, nor does the uterus immediately embrace the child closely. If the liquor amnii have been discharged in considerable quantity previous to labour, or if the membranes have burst at the commencement of it, when the os uteri is firm and small, we must by a recumbent posture, try still to preserve a portion of the waters, till the orifice will permit delivery. The introduction of the hand into the vagina and os uteri may be rendered easier, and less painful, by previously dipping it in oil or linseed tea, or any other lubricating substance.

But if the water has been long evacuated, then the fibres of the uterus contract strongly on the child, the presentation is forced firmly down, and the whole body is compressed so much, that the circulation in the cord frequently is impeded, and, if the labour be protracted, the child may be killed. This is a very troublesome case, and requires great caution. If the pains be frequent, and the contraction strong, then all attempts to introduce the hand, and turn the child, must not only produce great agony, but, if obstinately persisted in, may tear the uterus from the vagina, or lacerate its cervix or body. After a delay of some hours, however, the uterus may be less violent in its action, or by medical aid, the pains may be suspended. Copious blood-letting, certainly, has a power in many cases of rendering turning easy, but it impairs the strength, and often retards the recovery. If the patient be restless and feverish, it may, to a certain extent, be necessary and proper; but if not, we shall generally succeed, by giving a powerful dose of tincture of opium, not less than sixty or eighty drops. Previous to this, the bladder is to be emptied, lest it should be ruptured during the operation; and, if necessary, a clyster is to be administered. The patient is then to be left, if possible, to rest. Sometimes in half an hour, but almost always within two hours after the anodyne has been taken, the pains become so far suspended, as to render the operation safe, and perhaps easy. Our first object is, to

get the hand into the uterus ; and for this purpose, we must raise up the shoulder a little, working the fingers past it, by slow, cautious, but steady efforts. The cervix often contracts spasmodically round the presentation, and is the chief obstacle to the delivery, but the opiate generally allays this.\* Sometimes our efforts renew the pains, which, although they may not prevent the operation, make it more painful, and cramp and benumb the hand. Having passed the hand beyond the cervix, we carry it on betwixt the body of the child and the surface of the uterus, which is felt hard and smooth, from the tonic or permanent action of the fibres, until we reach the feet, both of which, if possible, we seize and bring down ; but if we cannot easily find both, one is to be brought down into the vagina, and retained there.(l) The child will be born, with the other folded up on the belly. In bringing down the feet, as well as in carrying up the hand, we must not act during a pain, but should keep the hand flat on the child ; a contrary practice is very apt to lacerate the uterus. Before introducing the hand, we must ascertain, by examining the presentation, which way the feet lie, that we may proceed directly to the proper place. We must also consider, whether we shall succeed best with the right or the left hand. If the right shoulder or arm present, some have made it a rule to deliver with the left hand, others with the right ; but much must depend on the dexterity of the operator, and the position of the woman. The most common position is the same as in natural labour. Sometimes we may find it useful to make the woman lie forward on the side of the bed, with her feet on the ground, and to place ourselves behind her.

When the hand and arm have been protruded, and the shoulder forced down in the vagina, it has been the practice with many, before attempting to turn, to return the arm again within the uterus ; and when this was impracticable, it has

\* The spasm may yield rather suddenly to the hand, as if rupture of the fibres had taken place. I was informed of one case of this kind, but the womb was entire, and no bad symptoms came on.

(l) By means of a noose applied round the ancle.

been torn or cut off, (*m*) especially if the child was supposed to be dead. Others advise, that we should not attempt to reduce the arm; nay, even that we should, in difficult cases, facilitate the operation, by bringing down the other arm, in order to change, to a certain degree, the position of the child. So far from it being necessary to replace the arm, we shall sometimes find advantage from taking hold of it with one hand, whilst we introduce the other along it; as the parts are thus a little stretched, and it serves as a director by which we slip into the uterus.

By the means pointed out, and by a steady, patient conduct, we may, in almost every instance, succeed in delivering the child. But it must be acknowledged, that in some cases, from neglect or mismanagement, the woman is brought into great danger, or may even be allowed to die undelivered. This catastrophe proceeds sometimes from mere exhaustion, or from inflammation, but oftener, I apprehend, from rupture of the uterus; or in a neglected case, so much irritation may be given to the system, as well as to the parts concerned in parturition, that although the delivery be easily accomplished, the woman does not recover, but dies, either from pulmonic or abdominal inflammation, or fever, or flooding. Moreover, such tedious cases generally end unfavourably for the child.

When turning has not been practicable, if the child was supposed to be alive, the os uteri has been cut, or the *cæsarian* operation has been proposed and practised.\* If dead, it has been extracted, by pulling down the breech with a crotchet;† and sometimes, in order to assist delivery, the

(*m*) We would strenuously dissuade from unnecessarily mutilating the fetus, even under the supposition of its death. We have known the child born with symptoms of life, even after the head has been opened, and the greatest portion of the brain evacuated, and born alive, after its death had been considered as certainly ascertained. It can seldom, if ever, be necessary to take off the arm to facilitate the operation of turning.

\* Vide Memoir by M. Baudelocque, in *Recueil Period.* Tome V. table 1. cases 5 and 15.

† *Peu*, in one case where both arms were protruded, applied a fillet over

body has been mutilated,\* or the head opened with the perforator. It is in general sufficient to carry the finger between the perinæum and the thorax to the abdomen, pierce it, and either by means of the finger or a hook fixed on the pelvis, it may be pulled down.

When the child has been small or premature, it has happened that the arm and shoulder have been forced out of the vagina, and then, by pulling the arm, the delivery has been accomplished.† In a greater number of instances, a spontaneous turning of the child has taken place, and the breech has been expelled first. The action of the uterus is exerted in the direction of its long axis, and therefore tends to push its contents through the os uteri. The child forms an ellipse; and either in natural labour, or presentation of the breech, the long axis of the ellipse corresponds to the long axis of the uterus. But in a shoulder presentation, the axis of the ellipse lies obliquely with regard to that of the uterus, or to the direction of the force; and therefore the continued action of the uterus may tend, by operating on the side of the ellipse, to depress the upper end, and force it gradually into the pelvis. Dr. J. Hamilton justly observes, that the evolution can only take place when the action of the uterus cannot be exerted on the presenting part, or where that part is so shaped that it cannot be wedged in the pelvis. This occurrence was first of all noticed, I believe, by Schoenheider;‡ but Dr. Denman§ was the first who, in this country, called the attention of practitioners to it. He collected no less than

the breech to bring it down. *Pratique* p. 412.—Smellie, in 1722 brought down the breech with the crotchet. *Col.* 35. case 3.—Giffard did the same in 1725, case 5.

\* Vide Perfect, Vol. I. p. 351.—Dr. J. Hamilton's Cases, p. 104. He found it necessary to separate three of the vertebræ.—Dr. Clarke twisted off the arm, and perforated the thorax freely. At the end of 36 hours the fœtus was expelled double. *Med. and Phys. Jour.* Vol. VII. p. 394.

† Giffard, case 211; and Baudelocque l'Art. §. 1530, in a note.—In Mr. Gardiner's case, the head followed the shoulders. *Med. Comment.* V. 307.

‡ *Acta Havn.* Tom. II. art. xxiii.

§ *Lond. Med. Jour.* Vol. V. p. 64.—See also case by Mr. Outnwait, in *New Lond. Med. Jour.* Vol. II. p. 172.—Mr. Simmons *Med. Facts and Obs.* Vol. I. p. 76.—Perfect's cases, II. 367.—*Med. and Phys. Journ.* Vol. III. p. 5.

thirty cases, but in these only one child was born alive. It does not appear that the child being large, is an obstacle to the delivery.\*

When this process is going to take place, we find that the shoulder is forced lower by strong pains ; the clavicle lies under the arch of the pubis, the ribs press out the perinæum ; and then appear at the orifice of the vagina. As the expulsion goes on, the clavicle is found on the pubis, and the acromion rises to the top of the vulva. Presently the arm, shoulder, and one side of the chest are protruded, and the breech has got into the hollow of the sacrum. By farther efforts the breech and extremities are expelled, and although neither the arm nor shoulder ever retire, yet this may be considered ultimately as a peculiar kind of breech case, for it is born before the head. When turning is impracticable or dangerous, and nature appears to have begun this process, it is hurtful to interfere, at least by attempts to push back the presentation, because we then retard the evolution. If any aid is to be given, the direction in which the shoulder should be made to move may be learned from the detail of the progress of the evolution.

A knowledge of this fact does not exonerate us from making attempts to turn ; for although a considerable number of cases are recorded where it has taken place, yet these are few in proportion to the number of presentations of the shoulder. In this city, (Glasgow) which contains not less than 110,000 inhabitants, I cannot learn that more than one case of spontaneous evolution has taken place, though some women have either died undelivered, or have not been delivered until it was too late to save them.†

\* Mr. Hey's case, in Lond. Med. Jour. Vol. V. p. 305.

† Delivery by *spontaneous evolution* is a very rare occurrence. But that it occasionally happens is proved beyond suspicion by the cases recorded by Dr. Denman and other respectable practitioners. Considering the difficulty and even danger often incident to turning, it is certainly important to know how to distinguish those particular cases in which this curious resource of nature will probably be successfully exerted. To warrant such an expectation, it must clearly appear that the uterine action, instead of operating on

Sometimes the arm presents along with the head, and this can only render delivery tedious or difficult, by encroaching on the dimensions of the pelvis. This case does not require turning; but if we can, we should return the arm beyond the head; if we cannot, we may succeed in bringing it to a place where it will not interfere much with the passage of the head. Sometimes the head is placed pretty high, being retained by a spasmodic contraction of a band of fibres round it, and the arm is the only presentation which can be felt, until the hand be introduced. Opiates, in this case, may be of service. We must never attempt by force to destroy the stricture, in order either to return the arm or bring down the head.

Occasionally both a hand and the feet have been found presenting with the head, or the feet and head present. In such cases, we can, if necessary, bring down the feet altogether, and this is in general proper.

Besides these presentations, we may meet with the back part of the neck, and the upper part of the shoulder; or the nape of the neck alone; or the throat.<sup>(n)</sup> These, which are very rare, require turning. They are recognised by their relation to the head and shoulders.

#### ORDER 4. OF THE TRUNK.

The hips, back, belly, breast, or sides, may, though very rarely, present, the child lying more or less transversely.<sup>(o)</sup> The hip is sometimes taken for the head,\* but is to be dis-

the presenting part, fixing it more closely in the pelvis, has the contrary effect of displacing it, and gradually bringing it out of the pelvis. But, if we are convinced after a careful examination that there is no tendency to *spontaneous evolution*, we should proceed to turn the child, as in proportion to the delay of the operation is commonly the hazard attending it. C.

(n) Of each of these, Baudelocque has constituted four varieties of presentations, for a synopsis of which we must refer to the table, which the reader will find at the end of this volume.

(o) Of each of these presentations there are also, according to Baudelocque, four varieties; for an enumeration of which, the reader is referred to the close of this volume.

\* La Motte was of opinion that no part resembled the head more than the hip. Vide obs. 283 and 284.

tinguished by the shape and relations of the ilium. In all the other cases, the presentation remains long high; but when the finger can reach it, the precise part may be ascertained, by one who is accustomed to feel the body of a child. If the child lie transversely, it may remain long in the same position, and the woman may die if it be not turned. But if, as is more frequently the case, it be placed more or less obliquely, then, if the pains continue effective and regular, either the breech or the shoulder will be brought to the os uteri, according as the original position favoured the descent of one or other end of the ellipse formed by the child. In these presentations, the hand should be introduced, to find the feet, by which the child is to be delivered. But, this rule is not absolute with regard to the presentation of the hip, which only renders labour tedious.

#### ORDER 5. OF THE FACE, &c.

The child may present the head, and yet it may be improperly situated, and give rise to painful and tedious labour.

1st. The forehead, instead of the vertex, may be turned to the acetabulum. (*p*) In this case, the presentation is felt in the first stage high up, smooth and flatter than usual. In a little longer, we discover the anterior fontanelle, and the situation of the sutures. By degrees, the head enters the cavity of the pelvis, the vertex being turned into the hollow of the sacrum; and by a continuance of the pains, the forehead either turns up within the pubis, and the vertex passes out over the perinæum; or the face gradually descends, and the chin clears the arch of the pubis, the vertex turning up within the perinæum towards the sacrum, till the face is born. The first is the usual process in this presentation; all the steps of the labour are tedious, and often, for a considerable period, the pains seem to produce no effect whatever. In the last stage, the perinæum is considerably distended, and it requires

(*p*) This includes the fourth and fifth presentations of the vertex, according to the division of Baudelocque, and have already been explained in our note on the Classification of Labours. Book II. chap. 1.

care and patience to prevent laceration. This presentation is difficult to be ascertained at an early stage, before the membranes burst; and sometimes the duration of the labour is attributed to weakness of the uterine action, and not to the position of the head. If it be discovered early, it is certainly proper to rupture the membranes, and turn the vertex round; a proceeding which is easily accomplished, and which prevents much pain and fretfulness. If this opportunity be lost, we may still give assistance. Dr. Clarke says, that in thirteen out of fourteen cases, he succeeded in turning round the vertex, by introducing either one or two fingers between the side of the head near the coronal suture, and the symphysis of the pubis, and pressing steadily, during a pain, against the parietal bone.(q) Of the advantage of this practice, I can speak from my own observation; and I have, even when the head had descended so low as to have the nose on a line with the arch of the pubis, succeeded in turning the face round to the hollow of the sacrum with great promptitude, and with so much facility, that the patient did not know that I was doing more than making an ordinary examination. Some have advised, that we should keep up the forehead during a pain, to make the vertex descend; or that we should, with the finger, depress the occiput.

The fontanelle, or crown of the head, may also present, although the face be turned to the sacro-iliac junction. In this case it is felt early, and, by tracing the coronal suture, we may ascertain whether the frontal bones lie before or behind. It is a much more uncommon presentation than that noticed above. The labour is, at first, a little slower than in a natural presentation, but, by degrees, the head becomes

(q) The editor can also unite from his own experience, in recommending the attempt at altering and correcting this *malposition* of the head, as above recommended; it has often proved successful in his own practice. It will be found that this mode of proceeding was first inculcated by Baudelocque, from observing that nature herself sometimes obviated difficulties, and accelerated the termination of the labour, by converting the fourth position into the second, and the fifth into the first; or, in bringing the posterior fontanelle from the right or left sacro-iliac symphysis, to the right or left acetabulum. Vide Art des Accouchemens.

more oblique, the vertex descending; and this may be assisted, by supporting the forehead with the finger during a pain. Should any untoward accident require the delivery to be accelerated, we have been advised to turn the child, and in doing so to use the left hand, if the occiput lie on the left acetabulum, and *vice versa*. But this operation can seldom be requisite.

The crown of the head may also present with the face to the pubis or the sacrum, but these positions are extremely rare.<sup>(r)</sup> In time, the head will generally become more diagonal, and descend obliquely, but we ought not to trust to this. We should rectify the position, for it is by no means difficult to move the head with the finger, if we attempt it early. We may even carry the forehead from the pubis to the sacro-iliac junction. The process is still more simple when the occiput is turned to the pubis, if we perform it early. If, however, we neglect it, we find that in a few instances the head does not turn at all, but enters the pelvis in the original direction, and becomes wedged,<sup>(s)</sup> requiring the use of instruments. This is oftenest the case, when the occiput is turned to the pubis; for the forehead being broad does not by a continuance of labour slip to the side of the promontory of the sacrum, so readily as the occiput would do.

2d. The side of the head may present. In this case, the presentation is long of being felt, but it is recognised by the ear. If, however, it has been long pressed in the pelvis, it is extremely difficult to determine the case. It is very rare, and has even been deemed to be impossible. In some instances the child has been turned, but it is most common to rectify the position of the head by introducing the hand.

3d. The occiput may present, the triangular part of the bone being felt at the os uteri. It is known by its shape, by

(r) These constitute the third and the sixth positions of the vertex, according to Baudelocque. The comparative infrequency of their occurrence is illustrated in the table, appended to the chapter on the Classification of Labours.

(s) This by the French writers is termed *enclavement*, and by the English, the locked head.

the lambdoidal suture, and its vicinity to the neck. The forehead rests on some part of one of the psoæ muscles, and from this oblique position of the head, the labour is tedious. It has been proposed, in this case, to turn ; but it is better, if we do any thing, to rectify the position of the head with the hand. Nature is, however, adequate to the delivery, even if not assisted. Some advise, that the woman should, by a change of position, endeavour to remedy the obliquity, making the child incline, so as to affect the situation of the head, but this has not much power in altering the position of the presentation, at least after the water has been evacuated.

4th. The face may present, with the chin to one of the acetabula, or to the sacro-iliac junction, or to the pubis or sacrum. The two first are the best, the second is more troublesome, and the last is worst of all. When the face presents, the labour is generally tedious and painful, for it is little compressible, and affords a broad surface, not well calculated to take the proper turns in the pelvis. The head, also, being thrown back on the neck, a larger body must pass, than when the chin is placed on the breast. By a continuance of the pains, the face becomes swelled ; and although at first it was recognisable by the mouth and features, yet now it is indistinct, and has been taken either for a natural presentation or the breech. By rude treatment, the skin may be torn ; and even under the best management, the face, when born, is very unseemly, and sometimes quite black and elongated, so that it has been known to measure nearly seven inches. This is especially the case when the chin is directed to the sacrum, and some children die from obstructed circulation, owing to the continued pressure on the jugular veins.

Face presentations have been attributed sometimes to convulsive vomiting, cough, or frequent examination, but generally no evident cause can be assigned ; and in the beginning of labour, the face itself does not present, but only the forehead : hence La Motte tells us, that although at first he found the head present properly, yet, when the membranes broke, the face came down.

Some have advised, that the child should be turned ;

others, that the chin should be raised up, to make the upper part of the face come down; or that if the head be advanced, a finger should be inserted into the mouth, to bring down the jaw under the pubis. Others leave the whole process to nature; but many endeavour with the hand to rectify the position.

If the presentation be discovered early, there can be little doubt as to the propriety of rectifying the position, but if the labour be advanced, this is difficult; and then it only remains that we should endeavour, if the labour be severe and tedious, to make the face descend obliquely, by cautiously but firmly supporting with a finger, during the pains, the chin or end which is highest, in order to favour the descent of the lower end. When the chin has advanced so far as to come near the arch of the pubis, we may follow a different method, and gently depress it, which assists the delivery, for generally the chin is first evolved. If, however, the process go on regularly and tolerably easy, we need not make these attempts. As the perinæum is much stretched, we must support it, and avoid all hurry in the exit of the head.

When the chin is directed to the sacrum, the labour is sometimes so tedious as to require the application of instruments.

#### ORDER 6. OF THE UMBILICAL CORD.

Sometimes the cord descends before, or along with the presenting part of the child. This has no influence on the process of delivery, but it may have a fatal effect on the child; for, if the cord be strongly compressed, or compressed for a length of time, the child shall die, as certainly as if respiration were interrupted after birth. If the cord be discovered presenting before the membranes burst, or if the os uteri be properly dilated when they burst, the best practice is to turn the child. It has indeed been proposed, to push the cord beyond the presenting part, or hook it upon one of the limbs; but, if the hand is to be introduced so far, it is better at once to turn the child. If the os uteri be not sufficiently relaxed,

we must not use force to expand it; and little can be done, except by rest, to prevent as much as possible, the evacuation of the water. As soon as the os uteri will admit the introduction of the hand, the child should be turned if it can be easily done. But if the presentation be advanced before we are called, and turning be difficult, then we must endeavour to keep the cord slack, or remove it to that part of the pelvis where it is least apt to be compressed; or it will be still better, to endeavour with two fingers to push the cord slowly past the head, and prevent it for two or three pains from coming down again.<sup>(t)</sup> This is less violent, and safer, than attempts to turn in an advanced stage of labour. Should this not be practicable, and the pulsation suffer, or the circulation be endangered, we must accelerate labour by the forceps. If the pulsation be stopped, and the child dead, when we examine, then labour may be allowed to go on, without paying any attention to the cord. The sum of the practice then is, that when the os uteri is not dilated, so as to permit of turning, we must not attempt it; when turning is practicable, it is to be performed; when the head has descended into the pelvis, the cord is to be replaced, or secured as much as possible from pressure; but if the circulation be impeded, the woman must be encouraged to accelerate the labour by bearing down, or instruments must be employed. When the presentation is preternatural, these directions are likewise to be attended to, and the practice is also to be regulated by the general rules applicable to such labours.

#### ORDER 6. PLURALITY OF CHILDREN AND MONSTERS.

Various signs have been mentioned, whereby the presence

(t) Mauriceau, in these cases, recommends returning the funis, and pushing a piece of soft linen after it, the end of which may remain hanging without. Dr. Mackenzie, a celebrated accoucheur of London, in a case where the funis presented, pulled down as much as he could, which he inclosed in a leathern purse; and thus returned it, pushing them up together into the uterus; in this case the child was born alive. He afterwards pursued the same practice, and sometimes succeeded; and others have since followed his example.

of a plurality of children in utero might be discovered, previous to their delivery. These are, an unusual size, or an unequal distension of the abdomen, an uncommon motion within the uterus, a very slow labour, or a second discharge of liquor amnii during parturition. These signs, however, are so completely fallacious, that no reliance can be placed upon them, nor can we generally determine the existence of twins, until the first child be born. Then by placing the hand on the abdomen, the uterus is felt large,\* if it contain another child; and, by examination per vaginam, the second set of membranes, or some part of the child, is found to present. This mode of inquiry is proper after every delivery.

Soon after the first child is born, pains usually come on, like those which throw off the placenta, but more severe; and they have not the effect of expelling it, for it is generally retained till after the delivery of the second child. No intimation of the existence of another child is to be given to the mother, but the practitioner is quietly to make his examination, rupture the membranes, if they have not given way, and ascertain the presentation. If it be such as require no alteration, he is to allow the labour to proceed according to the rules of art, and usually the expulsion is very speedily accomplished. If the first child present the head, the second generally presents the breech or feet, and *vice versa*; but sometimes the first presents the arm, and, in that case, when we turn, we must be careful that the feet of the same child be brought down. This one being delivered, the hand is to be again introduced, to search for the feet of the second child, which are to be brought into the vagina, but the delivery is not to be hurried.

It sometimes happens, that after the first child is born, the pains become suspended, and the second is not born for several hours. Now this is an unpleasant state, both for the patient and practitioner. She must discover that there is some-

\* In a case related by Mr. Aitken, the uterus was felt, after delivery, large and hard, as if it contained another child, but none was discovered. In the course of a fortnight the tumour gradually disappeared. Med. Comment. Vol. II. p. 300.

thing unusual about her, he must be conscious that hemorrhage, or some other dangerous symptom, may supervene. The first rule to be observed is, that the accoucheur is upon no account to leave his patient till she be delivered. The second regards the time for delivering. Some have advised that the case be entirely left to the efforts of nature, whilst others recommend a speedy delivery. The safest practice, if the head present, lies between the two opinions. If effective pains do not come on in an hour, the child ought to be delivered by turning. The forceps can seldom be required; for if the head have come so low as to admit of their application, the delivery most likely shall be accomplished without assistance. If the second child present in such a way, as that the feet are near the os uteri, as for instance, the breech or any part of the lower extremities, then the feet are cautiously, but without delay, to be brought down into the vagina, and the expulsion afterwards left, if nothing forbid it, to nature.

If, however, the position of the second child be such as to require turning, we are to lose no time, but introduce the hand for that purpose, before the liquor amnii be evacuated, or the uterus begin to act strongly on the child. Turning, in such circumstances, is generally easy.

In the event of hemorrhage, convulsions, or other dangerous symptoms, supervening between the birth of the first and second child, the delivery must be accelerated, whatever be the presentation, and managed upon general principles.

When there are more children than two, the woman seldom goes to the full time, and the children survive only a short time. There is nothing peculiar in the management of such labours.

It still remains to observe, that we ought to be peculiarly careful in conducting the expulsion of the placenta of twins. Owing to the distension of the uterus, and its continued action in expelling two children, there is a greater than usual risk of uterine hemorrhage taking place. The patient must be kept very quiet and cool, gentle pressure should be made

with the hand externally on the womb, and no forcible attempts are to be permitted, for the extraction of the placenta, by pulling the cords. If hemorrhage come on, then the hand is to be introduced to excite the uterine action, and the two placenta are to be extracted together. The application of the bandage, and other subsequent arrangements must be conducted with caution, lest hemorrhage be excited.

The placenta are often connected, and therefore they are naturally expelled together, but this adds nothing to the difficulty of the process. Sometimes they are separate, and the one is thrown off before the other; or it may even happen, that the placenta of the first child is expelled before the second child be born, but this is very rare, and is not desirable.

Women, who have borne a plurality of children, are more disposed than others to puerperal diseases, and must therefore be carefully watched. It rarely happens, that they are able to nurse both children without injury.

It is possible for two children to adhere, or for one child to have some additional organ belonging to a second, as, for example, an arm or a head. Such cases of monstrosity may produce considerable difficulty in the delivery; and the general principle of conduct must be, that when the impediment is very great, and does not yield to such force as can be safely exerted, by pulling that part which is protruded, a separation must be made, generally of that part which is protruded, and the child afterwards turned, if necessary. Unless the pelvis be greatly deformed, it will be practicable to deliver, even a double child, by means of perforation of the cavities, or such separation as may be expedient, and the use of the hand, forceps, or crotchets, according to circumstances. A great degree of deformity may render the caesarean operation necessary.

With respect to children who are monstrous from deficiency of parts, I may take the present opportunity of observing, that no difficulty can arise, during the delivery, except in ascertaining the presentation, if the malformation be to a great extent, as, for instance, in acephalous children.

## CHAP. V.

*Of Tedious Labour.*

## ORDER 1. FROM IMPERFECTION OR IRREGULARITY OF MUSCULAR ACTION.

IF the expulsive force of the uterus be diminished, or the resistance to the passage of the child be increased, the labour must be protracted beyond the usual time, or a more than ordinary degree of pain must be endured.

Tedious labour may occur under three different circumstances :

*First*, The pains may be from the beginning weak or few, and the labour may be long of becoming brisk.

*Second*, The pains during the first stage may be sharp and frequent, but not effective ; in consequence of which the power of the uterus is worn out before the head of the child have fully entered into the pelvis, or come into a situation to be expelled.

*Third*, The pains during the whole course may be strong and brisk, but from some mechanical obstacle, the delivery may be long prevented, and it may even be necessary to have recourse to artificial force.

Different causes may retard the process of parturition. The first and most obvious one, referable to the order at present under consideration, is a weak or inefficient action of the uterine fibres. This may be dependent on general debility or inactivity, but more frequently it proceeds from the state of the uterus itself. It is marked by feeble pains, which dilate the os uteri slowly, and are long of forcing down the head. But although the pains be feeble, they may produce as great sensation as usual, for this is proportioned rather to the sensibility than to the vigour of the part. It is, however, usual, when labour is protracted from this cause, for the pains to be less severe than in natural labour. They may come much seldomer, or, if frequent, they may last much shorter, and be less acute. The whole process of labour is

sometimes equally tedious, but, in most cases, the delay principally takes place in one of the stages, generally in the first, if the cause exist chiefly in the uterus. If, however, it proceed from general debility, we often find, that if the first stage be tedious, the powers are thereby so exhausted, that the second can with difficulty be accomplished. Hence, although consumptive patients often have a rapid delivery, yet if the first stage be slow, the head frequently cannot be expelled without assistance. It is not always easy to say what the cause of this slow action of the uterus is. Sometimes it proceeds from contraction commencing rather prematurely; or from the membranes breaking very early, and the water oozing slowly away; or from the uterus being greatly distended by liquor amnii, or a plurality of children; or from fear, or other passions of the mind operating on the uterus; or from torpor of the uterine fibres, frequently combined with a dull leucophlegmatic habit, or with a constitution disposed to obesity; or from general weakness of the system.

In a state of suffering and anxiety, the mind is apt to exaggerate every evil, to foresee imaginary dangers, to become peevish, or desponding, and to press with injudicious impatience for assistance, which cannot safely be granted. Great forbearance, care, and judgment, then, are required on the part of the practitioner; who, whilst he treats his patient with that gentleness and compassionate encouragement, which humanity and refinement of manners will dictate, is steadily to do his duty, being neither swayed by her fears and intreaties, nor by a selfish regard to the saving of his own time.

Some women seem constitutionally to have a lingering labour, being always slow. In such cases, unless the process be considerably protracted, or attended with circumstances requiring our interference, it is neither useful nor proper to do more than encourage the patient, and preserve her strength.

A variety of means were at one time employed for exciting the action of the uterus, such as dilatation of the os uteri, and the use of emetics, purgatives, or stimulants. A very different practice now happily obtains; the patient is kept

cool, tranquil, and permitted to repose ; the mildest drink is allowed, all fatiguing efforts are prohibited, and she is encouraged by the mental stimuli of cheerfulness and hope, rather than by wine and cordials. But, whilst in cases where labour is only a little protracted, we trust entirely to this treatment, with the addition of a saline clyster, which is of much service, and ought seldom to be omitted, yet, where it is longer delayed, some other means are allowable, and may be necessary.

The pains in tedious labour, connected with defective uterine action, may be continuing regular, but weak, not from exhaustion, but rather from the uterus not exerting the power it has ; or there may be a tendency to remit, the pains coming on seldom. In the first of these states, we have to consider whether there be heat of the skin, full pulse, with thirst and restlessness. If so, and especially if the os uteri be not relaxed, venesection will be of great benefit, by making the uterus act with more freedom, and its mouth yield with great readiness. We know that in most cases of uterine hemorrhage, the os uteri, even where there is no effective labour, and scarcely any pain, is not merely dilatable, but is actually dilated. In this instance, however, the benefit of evacuation cannot be derived, for the discharge injures and impairs the whole power of the uterus, and in proportion as the os uteri is extended, the quantity of the blood which flows is increased ; besides, the evacuation usually begins before labour commences, and pains do not come on till the loss of blood excite them. We learn, however, from this example, the influence of hemorrhage in relaxing the os uteri, and if we can do this without impairing the power of the womb, we have certainly a powerful mean of accelerating labour ; venesection does this in certain cases. It can do no good, but much harm in cases of exhaustion, or in cases where the resistance is afforded by a contracted pelvis, and all other circumstances are right. But in cases where the parts, through which the child must pass, are rigid or dry, or hot and tender, or where the pains are great, but irregular and inefficient, or the membranes have given way prema-

turely, the pains are sharp, but abortive, and the os uteri thick or hard, or the patient is feverish, blood-letting is safe, and may be expected to do good. That it is safe, we know from the experience of former ages and other countries, as well as from our own observation in cases of convulsions, where a great quantity of blood is taken away with present advantage and future impunity. It is, however, a remedy, which, if imprudently employed, may do much mischief. In cases of exhaustion, for instance, it must be dangerous; and in every constitution, and under every circumstance in which it would, independent of labour, be improper to evacuate, it is evident that it will be hurtful, unless we can thereby save the patient prolonged exertion and exhaustion. In natural labour, it is neither necessary nor proper; in labour not greatly protracted, nor unusually severe and slow in its steps, it is not to be resorted to. It is better to trust in these cases to the use of clysters, to gentle motion and change of posture, or to sleep, if it offer naturally, and the patient require to be recruited.

The effect of venesection in shortening the process of labour, and in rendering the pains in many cases brisker, is to be explained by its power in relaxing the parts, and diminishing the resistance afforded. It is a curious fact not sufficiently attended to, that in many cases a very moderate resistance, which we should think the uterus might easily overcome, does retard the expulsive process, and render the pains irregular or inefficient. Thus, I know from experience, that the membranes may be so tough as not readily to give way, and in this case the pains do become less effective, and the labour is protracted till they are opened. Whenever the resistance is removed, the pains become brisk and forcing. In the same way, relaxing the os uteri by blood-letting excites the uterine fibres to brisker action.

If the woman be fatigued or debilitated, and the pulse weaker than in lingering labour we shall derive advantage from the use of a small clyster, followed by twenty drops of laudanum, or a proportional quantity in an injection. This does not suspend the pains, but rather excites them. A simi-

lar stimulus is sometimes given by a gentle purge, but this is more slow and uncertain in its effects.

When there is a strong tendency in the pains to remit, or keep off, we are to follow pretty nearly the same conduct with regard to venesection, in the circumstances which I have pointed out, as admitting of it; but it is much more rarely required in those cases, than where the pains are less frequent. When it is employed, it either procures a remission and sleep, followed by brisk action, or it excites more immediately the pains; for whatever diminishes the resistance or obstacles, whatever produces relaxation, speedily acts as a stimulus to the uterus to contract; cordials and stimulants are more doubtful in their effect. If, however, blood-letting be improper, we give a clyster, and then forty drops of laudanum, which either makes the pains effective and brisk, or suspends them for a time, till the womb recruit.<sup>(u)</sup>

There is another state in which the pains are weak, or remit, or are ineffective from absolute exhaustion or debility, and we distinguish this case by the weak pulse, languor, and previous fatigue, and in part by the constitution of the woman. If no urgent symptom require delivery, we must support the strength by the prudent administration of cordials and nourishment. This is the only case in which cordials

(u) In cases where the contractions of the uterus are inefficient from want of energy or irregular action of the uterine fibre, provided the cervix and os uteri, as well as the external parts are sufficiently dilated or disposed to dilate; recourse may be advantageously had to the ergot, or spurred rye. Under these circumstances the editor has frequently derived the most decided advantages from its use, given in fine powder, in the dose of about one scruple in syrup, and has seldom had occasion to repeat it. In about twenty minutes after the exhibition of the article, the contractions of the uterus are invigorated, and the process accelerated in some instances probably several hours.

In judicious and discriminating exhibition, this article of the *materia medica* may be considered as a valuable acquisition in the practice of midwifery; although, like all other powerful medicines, in rash and inexperienced hands it may possibly do harm.

For fuller information on this subject the reader is referred to the papers of Drs. Stearns, Prescott, and Bigelow.

The credit of introducing this medicine into obstetrical practice is exclusively due to the practitioners of the United States.

are proper, and they must even here be given prudently, lest they produce a febrile state. It is also useful to suspend for a time the uterine action, and procure rest by an anodyne clyster.

If the water be discharged very early in labour, or before the pains come on, the process is often lingering, but it is not always so. The os uteri is, when we first examine, projecting, then it becomes flat, but the lips thick; then they become thinner and more dilated, and presently very thin; and the lower part of the uterus is perhaps applied so closely to the head, that at first it might be taken for the head itself. These changes may take place quickly, but they may also be very slow, the pains sharp and ineffective, and the water discharged in small quantity with each pain. The pains are severe, but produce very little effect, and often when they go off, are succeeded by a most distressing uneasiness in the back, lasting for nearly a minute after the pain. A saline clyster is of much benefit in this kind of labour; and it is useful to press up the head, especially during the pains, to favour the evacuation of the water; for, whenever this is accomplished, naturally or artificially, the action becomes much stronger. It is also useful to detract blood, if the os uteri be rigid, the parts not disposed to yield, and the pains very severe. It is peculiarly proper when the woman has rigours. When the organs are firm, and the pains lingering, it causes relaxation, and quickens the pains. If, on the other hand, the os uteri be lax and thin, or soft, it is both safe and advantageous to dilate it gently with the finger during a pain. If this be done cautiously, it gives no additional uneasiness, whilst the stimulus seems to direct the action of the uterine fibres more efficiently towards the os uteri, which sometimes thus clears the head of the child very quickly, and the pains which formerly were severe, but in the language of the patient, unnatural and doing no good, become effective and less severe, though more useful. This advice, however, is not meant to sanction rash and unnecessary attempts to dilate the os uteri, which sometimes render labour more tedious, by interrupting the natural process, and also lay the founda-

tion for inflammatory affections afterwards. When the pains are irregular, and are succeeded by aching of the back, if the state of the os uteri do not indicate venesection, from two to three grains of opium may be given with advantage.

If, again, in lingering labour, the membranes be entire, the os uteri soft, lax, and well dilated, and the presentation natural, it is allowable and beneficial to rupture the membranes; and this is more especially proper, if the uterus be unusually distended. The evacuation of the water is succeeded by more powerful action, a circumstance which, whilst it points out the advantage of the practice in the case under consideration, forbids its employment in natural labour, where the process is going on with a regularity and expedition, consistent with the views of nature, and the safety of the woman.

Sometimes, after the first stage is completed, and the os uteri is well dilated, the second does not commence for some hours; but the first kind of pains continue in different degrees of severity, without producing any perceptible effect. If no particular cause require our interference, it is best to trust to time; but, if it be necessary to accelerate the labour, it may often be done by rupturing the membranes, or, if they have already broken, we may place two fingers on the margin of the os uteri, which is next the pubis, and gently assist it, during the pains, to slip over the head.

When a woman is greatly reduced in strength, previous to labour, that process is looked forward to with apprehension. It is, however, often very easy. But, if it should be protracted, the patient is to be kept from every exertion. The general plan of treatment pointed out for such cases is to be followed, and, if the strength fail, the child must be delivered. We must be particularly careful that hemorrhage do not take place after delivery, or that it be promptly stopped.

If the head rest long on the perinæum in tedious labour, the pains having little effect in protruding it, especially if the first stage have been lingering, it comes to be a question, whether we shall deliver the woman. This case is different

from that where the difficulty proceeds from a contracted pelvis, for the head is low down, the bones are not squeezed nor mishapen, there is only a swelling of the scalp, the finger can be passed round the head, and two strong pains might expel it. Whilst the strength remains good, there is no warrant for delivering. A soothing treatment, promoting rest, restraining voluntary bearing-down efforts, and giving a little wine, or an opiate, if the patient be exhausted, will generally be successful. But, if the labour be still protracted, the strength sinks, the pulse becomes weak and frequent, the pains useless, the woman complains of head-ache, is restless, has not the full command of her mind, and sometimes vomiting comes on after every pain. In such cases, the forceps must be employed, as will hereafter be noticed. It is impossible to determine how many hours a labour may be permitted to continue, for time alone is not to be our rule; we must be regulated greatly by the effects of labour. Yet it may not be altogether useless to state the periods, at which lingering labour has terminated in a large hospital. From Dr. Breen's tables it would appear, that, in the Dublin hospital, of 172 women in labour of their child, 102 were from 40 to 50 hours in labour; 34 from 30 to 40; 24 from 70 to 80; and 12 from 90 to 100; 121 children were alive. Of 91, who had borne children formerly, 48 were from 40 to 50 hours in labour; 28 from 30 to 40; 9 from 70 to 80; and 6 from 50 to 60; 66 children were alive.

In tedious labour, it is not necessary to confine the woman to bed, or to one posture; she may be allowed to sit, lie, or walk, as she feels inclined; and we are not to urge her to stand long, or use exertion by way of promoting labour. She has generally not much inclination for food, but, if the process be protracted, it is useful to give some light soup, and a little wine, if she desire it. If the urine be not regularly passed in tedious labour, the catheter ought to be introduced. It is not necessary that the practitioner remain constantly with the patient. It will have a better effect upon her, if he see her at proper intervals; whilst he is thus prevented himself from being so fatigued, as he otherwise would

be, and is therefore better able to discharge his duty with firmness and judgment.

The second general cause of tedious labour is, irregular action of the uterine fibres. After the child is born, the uterus sometimes contracts like a sand-glass, and retains the placenta. The same spasmodic action may occur before the child be expelled. It is marked by pain coming at intervals, like proper pains, but it is confined to the belly, and has little effect on the os uteri, or in forcing down the child, nay the os uteri sometimes seems even to contract during a pain. The contraction does not go off with the pain, it only lessens; hence the band of fibres still compresses the child or ovum, and, if the membranes have not broken, they are often kept so tense, as at first to resemble a part of the child, and may mislead the practitioner with respect to the presentation. There is a frequent desire to void urine, and the spirits are generally depressed. If this affection be slight, it may soon go off; but if the spasm be strong, it sometimes continues for many hours. A smart clyster is often of great service. Blood-letting sometimes does good, but I prefer opening the membrane if the presentation be good, and the os uteri lax; this I have found very successful. If, on the contrary, the os uteri be rigid or undilated, and especially if the presentation be not determined, they must be kept entire, until the os uteri will permit of turning, should the position of the child require it. In such cases, and even when the os uteri has been in such a state as to warrant the rupture of the membranes, but this has not been successful, we may derive advantage from giving a large dose of solid opium; for in this spasm, like tetanus, opium may be taken safely in prodigious doses. Even ten grains have been given, but in general from four to six are sufficient. After the child is born, the hand should be introduced into the uterus, not to extract the placenta quickly, but to come easily in contact with it, and excite the uterus to regular action; for generally the spasm returns, and the placenta may be long retained, or hemorrhage produced.

A frequent cause of tedious labour, is a state of over-action,

or unproductive action in the first stage, by which the powers of the uterus are exhausted, and the subsequent process is rendered very slow. This exhaustion may also be produced by the continuance of debilitated action or feeble and useless pains. In the first case, the pains are sharp and frequent, but do not dilate the os uteri properly, nor advance the process in general. It may be produced by irregular action of the fibres, or by premature rupture of the membranes. In the second case, the pains are lingering, short, and usually weak. I have already considered the remedies for those states; blood-letting, clysters, gentle dilatation of the os uteri, &c. and have here only to observe, that the exhaustion of the uterus, and consequently an additional prolongation of the labour is to be prevented either by suspending the pains for a time, or by rendering them more effective, (x) and upon this subject, I refer to what I have already said in the beginning of this chapter. Unproductive action ought never to be allowed to continue so long as materially to impair the action of the womb. If we cannot safely render the action more efficient, we must endeavour to suspend it; by which the womb recruits, and the retarding cause may in the meantime be removed, or cease to exist.

Another cause of tedious labour is, the accession of fever, with or without local inflammation. Fever is recognised by its usual symptoms, and may be produced by the injudicious use of stimulants, heated rooms, irritation of the parts, &c. It is to be allayed by opening the bowels, keeping the patient cool in bed, and giving some saline julap; at the same time that the mind is to be tranquillized. If these means do not immediately abate the heat, frequency of pulse, &c. and render the pains more effective, it will generally be proper to detract blood, especially if the head or chest be pained. When local inflammation accompanies fever, it is commonly of the pleura or peritoneum, or vagina. The first is discovered by pain in the thorax, cough, and dyspnœa;

(x) Which may very frequently be safely done by the judicious use of the ergot or spurred rye.

the second by pain in the belly, gradually increasing and becoming constant ; pressure increases it, and in some time the patient cannot lie down, but breathes with difficulty, or is greatly oppressed, and vomits. The labour pains are sometimes suspended ; on other occasions, they do ultimately expel the foetus, but the woman dies in a few hours. On the first appearance of these symptoms, blood should be freely detracted, the bowels opened, and a gentle perspiration excited. In all these cases of inflammation, if immediate relief be not obtained, the child must be delivered by the forceps. If the vagina be hot and dry, we are also to deliver immediately, as these symptoms indicate danger from inflammation.\*

Labour may also be rendered tedious, by the different stages not going on regularly, but efforts being prematurely made to bear down. In consequence of these, the uterus descends in the pelvis, before the os uteri is dilated, and the process is often both painful and protracted. In some cases, the womb prolapses, so that its mouth appears at the orifice of the vagina. This prolapsus may take place during pregnancy, or after parturition begins. It is often met with, in a slight degree, whilst the os uteri is not greatly dilated, and uniformly injures the labour. We are to prevent it from increasing, by supporting the head or the uterus with two fingers, during the continuance of a pain ; at the same time that the woman avoids, as much as possible, every bearing-down effort, and remains in a recumbent posture. If the os uteri be slow of dilating, some blood should be taken away, and an opiate administered. It has happened that, by ne-

\* I have observed, generally, that women in labour bear well the loss of blood. Bleeding, undoubtedly, when used judiciously, facilitates the expulsion of the child, and secures a more speedy recovery, or "*getting up*." It moreover, obviates the train of unpleasant consequences to which women are liable from the tendency in their systems to inflammation at the time. As a remedy to suspend uterine action with a view of turning the child, bleeding is never to be neglected, provided the woman is not exhausted. But when it does not produce that effect, which will often happen, then opium in a large dose may be resorted to with advantage. It is correct practice, however, in most cases to let bleeding precede the anodyne. C.

glecting these precautions, the uterus has protruded beyond the external parts. In this case, no time is to be lost in attempting the reduction, which will be rendered easier by cautiously pulling back the perinæum.\* If this cannot be done, the os uteri, if lax and yielding, must be gently further dilated, the membranes ruptured, the child turned, and the uterus replaced.† The os uteri has been cut,‡ but this can never be necessary, if the structure of that part be natural. When the womb does not actually protrude, the vagina may be inverted like a prolapsus ani. A soft cloth, dipped in oil, should be placed on the part, and pressure made with the hand. Giesman cut the inverted vagina on a probe, but this operation can rarely be required. If the womb prolapse before labour, as happened to Røederer's patient, we must manage the case as a simple prolapsus. She had severe pains, although she was not in labour.

## ORDER 2. FROM SOME MECHANICAL IMPEDIMENT.

There exists, naturally, such a proportion between the size of the head and the capacity of the pelvis, that the one can pass easily through the other. But this proportion may be destroyed, either by the head being larger or more completely ossified, or the pelvis smaller than usual. In such cases, which are to be discovered by careful examination, it is evident that the labour must be more tedious, and more painful, than it otherwise would be. The first stage of the process is sometimes, but not always slow; the second is uniformly so; the head is long of descending into the pelvis, it rests long on the perinæum, the pains are frequent, severe, and often very forcing, but the woman says they are doing no good. Now this state requires much patience and discretion. The bowels should be opened with a laxative; the urine regularly expelled; the strength preserved by quietness, avoid-

\* Vide Mem. of Med. Soc. Vol. I. p. 213.

† Vide Portal's 10th Obs.; and Ducreux's case, in Mem. de l'Acad. de Chir. Tome III p. 368. See also a case by Saxtorph.

‡ Vide case by Dr. Archer, New York Med. Rep. Vol. I. p. 323.

ing unnecessary exertion, indulging any disposition to sleep which may exist, and taking a little light nourishment occasionally; the mind is to be soothed, the hopes supported, and, if the pains begin to slacken, an opiate may be given, to procure rest. By these means, the child will be at last expelled, though, perhaps, not till the woman has been two or three days in labour. If in this, or indeed in other cases of tedious labour, we find the head remain so long in the brim of the pelvis, as to obstruct the circulation in the soft parts, or irritate them, producing swelling, which is preceded by heat, dryness, and a feeling of tenderness during examination, with or without a sensation of tightness within the pelvis, and cramp in the legs, the child must be delivered *quam primum*.

Malposition of the head may likewise retard the labour; but this has already been considered.

Another cause of tedious labour is, rigidity of the soft parts, which may be dependent on advancement in life, or some local peculiarity; and these causes generally act more powerfully in a first than a subsequent labour. This rigidity may exist in the os uteri, in the external parts, or in both; and if, along with this, there be premature rupture of the membranes, the difficulty is always increased. When it exists in the os uteri, that part is very long of dilating; the effect of the pains, for a long time, is rather to soften than to dilate; and after the woman has been many hours in labour, it is found, when the pain goes off, to be collapsed, and projecting like the os uteri in the eighth month of pregnancy. In this case, the first stage is very slow, lasting sometimes two or three days; and the second is likewise tedious. The whole process takes up, perhaps, four days or more. When the rigidity exists chiefly or partly in the external parts, they are found to be at first dry, tight and firm. By degrees, they become moister and more relaxed; but they may still be so unyielding as to keep the head for many hours resting on the perinæum. Now in these cases, it is to be recollected, that generally time and patience will safely terminate the labour. When the head reaches the perinæum, if the pains be trifling or ineffective, it is of service to keep the woman for some

time in a kneeling or erect posture. Some methods have been proposed for abating the rigidity; such as baths, fomentations, and oily applications; or digitalis and sickening medicines given internally; but these have no good effects, and some of them do harm.\* Blood-letting has been employed in such cases. Dr. Rush informs me, that in America, it has been used with great advantage; and Dr. Dewees has politely sent me a dissertation on this subject, which contains very good cases of its efficacy, when pushed freely. In some instances, fifty ounces were taken before the parts relaxed. In determining on the use of blood-letting, we must attend to the state and habit of the patient. Debilitated women,† and those who are exhausted by fatigue, especially among the lower classes in large cities, are injured rather than benefited by this practice. Robust women, of a rigid fibre, in the middle class of society, or who live in the country, bear blood-letting better, and derive more benefit from it. In them it is especially proper, if any degree of fever attend the labour, and in all cases when the parts are rigid, if the patient be not previously reduced, or very delicate, blood should be detracted *pro viribus*. If, however, the state of the patient forbid this, an opiate clyster may be substituted.

In some cases, the os uteri or external parts, instead of

\* These remedies are mostly inefficient or injurious. The *warm bath* is productive of no advantage, and is apt to detach the placenta, occasioning thereby dangerous hemorrhages. But I confess, my objections to it arise rather from what I have learnt of others in whom I can confide, than from my own experience, having rarely seen the bath employed. *Nauseating medicines*, of different kinds, I have tried, but with no good effect. Where the external organs are rigid, and dry, and swelled, local *fomentations*, and *oily applications*, may, perhaps, be of some service.

*Blood-letting*, if regulated by a sound discretion, is undoubtedly the *remedy* in these cases. It may often be pushed to a considerable extent. I have drawn as much as fifty ounces of blood in the course of a day, or night, where the os tinæ obstinately refused to yield. In rigidity of the vagina, owing either to natural or acquired causes, and in tumefaction of the external parts attended with soreness to the touch, it is equally useful. C.

† Dr. Dewees bleeds even delicate women, and those who are disposed to faint on being bled, but takes a smaller quantity from them.

being rigid, are tumid, and apparently œdematous. In these, the labour is often protracted for several hours, (y) especially when the os uteri is affected. In tedious labour, the os uteri sometimes becomes swelled, as if blood were effused into its interstices. This requires venesection, and then a smart clyster.

The os uteri may be naturally very small. In some instances, it has with difficulty admitted a sewing needle; and in two cases, during labour, I found it almost impervious, hard, circular, and with difficulty discovered; but it gradually dilated. Venesection is in this state of service. Sometimes it is hard and scirrhus, so that it has been deemed necessary to make an incision into the os uteri, to make it dilate.\* It is also possible for the os uteri to be closed in consequence of inflammation, so that it has been necessary to make an artificial opening.†

Contraction and cicatrices in the vagina, likewise retard labour, and cause very great pain, until they either relax or are torn, but it is seldom necessary to perform any operation. If it should, they must be cut.

Excrescences proceeding from the os uteri, an enlarged ovarium remaining in the pelvis, or tumours(z) attached to

(y) A case of this kind occurred not long since to the Editor, where, in consequence of the great tumefaction of the labia and parts in the vicinity, it became necessary to have recourse to punctures, to prevent the bursting or laceration of the immensely distended integuments. The tumefaction was so great, that the patient could only lay on her back, with her knees drawn up and her thighs supported by pillows—the canal of the vagina was so lessened by pressure from the effusion in the surrounding parts, that the examination to discover the state of the labour, was made with considerable difficulty. After the punctures in the labia (which jointly appeared to be as large as a child's head,) were made, the fluid continued oozing out for several hours, and it was supposed, by a judicious assistant, that nearly three pints of water had been evacuated. The labia ultimately were completely reduced, and indeed became flaccid, and the labour then progressed and was accomplished without any great difficulty, but the child was dead.

\* A case of this kind occurred to Dr. Simson of St. Andrews, and another to a practitioner in America.

† Vide Case by Campardon, in *Recueil Period.* Tom. XII. p. 227.

(z) A very interesting paper by H. Park, Esq. of Liverpool, entitled "Ob-

the ligaments, or a stone in the bladder, may all obviously retard the labour, some of them so much as to require instruments. A stone in the bladder ought either to be pushed up beyond the head, or extracted.\*

A small vagina may require a long time to be dilated.

A great degree of obliquity of the uterus protracts labour. The os uteri may be turned very much to one side, but oftener it is directed backwards and upwards, and may be out of the reach of the finger. Time rectifies this, but it may also be assisted by the finger. Retroversion of the uterus may likewise prove a cause of tedious labour, and can only be remedied by cautiously attempting to press down the os uteri from above the pubis.

Malformation of the organs of generation may afford great obstacles to the passage of the child, so that even the incision may be required as happened in the case related by Mr. Bonnet, in the thirty-third volume of the Philosophical Transactions.

By shortness of the umbilical cord, or still more frequently, by the cord being twisted round the neck, the labour may

servations on Tumours within the pelvis, occasioning difficult parturition," is to be met with in the second Vol. of the Medical and Chirurgical Transactions; and also in Eclectic Repertory, Vol. IV.

It would appear from the cases in this paper, that embryulcia and the crotchet can be rarely necessary in such instances.

It has been found sufficient, generally, to puncture the tumour, or to make an incision into it, after which the child has been expelled with but little difficulty, and without injury.

\* The dilatibility of the female urethra is very remarkable, so as to admit of the extraction of a calculus of a large size, occasionally, without having recourse to the surgical knife. Dr. Heberden says he "saw an urinary calculus voided by a woman, of an oval form, whose larger circumference was six inches, and the lesser four inches. She was delivered of a child the next day with less pain than she had felt in parting with the stone." Heberden's Commentaries, p. 88.

In the 6th volume of the Medico-chirurg. Transactions, Dr. Yelloly gives an account of a very large urinary calculus removed from the female urethra without operation. It weighed three ounces, three and a half drachms Troy; it was three inches and one-eighth long, two inches broad, one inch and seven-eighths thick, and seven inches and three-fourths round in its larger, and five inches and a half in its smaller circumference.

be retarded, particularly in the latter end of the second stage. The cord may be on the stretch, but it never happens that it is torn, and very seldom that the placenta is detached. We have no certain sign of the existence of this situation; but there is presumptive evidence of it, when the head is drawn up again upon the recession of each pain.(a) It often remains long in a position, which we would expect to be capable of very quick delivery. By patience, the labour will be safely terminated; but it may often be accelerated, by keeping the person for some time in an erect posture, on her knees. After the head is born, it is usual to bring the cord over the child's head, so as to set it at liberty; and this is very proper when it can easily be done, as it prevents the neck from being compressed with the cord in the delivery of the child, by which the respiration, if it had begun, would be checked, or the circulation in the cord be obstructed. Some have advised that the cord should be divided, after applying the double ligature; but this is rarely necessary, for the child may be born, even although the cord remain about the neck.(b)

Preternatural strength of the membranes may also to a certainty prove a cause of tedious labour. This is at once obviated, by tearing them, which is done by laying hold of them when slack, during the remission of the pains. It sometimes requires a considerable effort to do this.

(a) This retraction of the head during the recession of a pain, is more frequently owing to the rigidity of re-action of the external parts; and may often be obviated, if necessary, by venesection. We believe it is rarely owing to the cause here assigned for it by our author.

(b) In some cases where it has been found impracticable, without great danger of rupturing the cord, to bring it over the head of the child, it has answered to pass it over the shoulders of the infant, and thus suffer it to be born through the noose of the cord.

## CHAP. VI.

*Of Instrumental Labours.*ORDER 1. OF CASES ADMITTING THE APPLICATION OF THE  
FORCEPS AND LEVER.

THE head may be enlarged by disease, or the capacity of the pelvis may be considerably diminished, by causes which have been noticed in the beginning of this work. Then, from the pressure of the head upon the soft parts in the pelvis, and the forcible but opposed efforts of the uterus, severe pain is produced, and the sufferings of the patient are protracted in proportion to the resistance which is to be overcome. Now we have to consider the danger of such a case, and to recollect the cause of this danger. It proceeds from the pressure of the child upon the soft parts of the mother, which, within a certain period, must produce that kind of inflammation which is speedily followed by sloughing. Besides this source of risk, there is ground for alarm, lest the uterus should burst; or abdominal inflammation supervene; or a suppression of urine take place; or the system become irreparably exhausted, in consequence of long and severe exertion. These dangers are not all equally frequent in their occurrence, nor do they take place in the same degree in every case. It is however evident, that if the resistance cannot be overcome, and the child be born, one or more of these causes must destroy the mother; whilst the long continued pressure upon the child, the consequent injury which the head sustains, and the interruption which may be given to the circulation, must prove fatal to her offspring. But we likewise know, upon the other hand, that the regular and continued efforts of the uterus can overcome a very great resistance, and that these efforts, within certain limits, are safer for the mother, and more favourable to the child, than the application of artificial force. We should, therefore, lay it down as a general rule, that when the deformity

is not excessive, and no urgent symptom is present, we should fully ascertain what the uterus can do, before we assist it. We know, that if the pelvis measure, in its diameter, only three inches and a half, then we must have a painful and difficult labour, because, as the head measures as much in its lateral extent, it must be compressed more or less, in order to pass. If the brim, however, measure only three inches, then the head of a child at the full time cannot pass, until it has been pressed so long as to diminish its breadth fully half an inch.\* The more, then, that the brim is reduced below its natural dimensions, the longer and more painful must the labour be, until we come to such a degree of contraction, as will either render expulsion altogether impossible, or delay it until great danger has been induced.

It is difficult to draw the line of distinction betwixt that degree of contraction which will render it impossible for delivery to take place naturally, and that which will only render it extremely difficult. It has been proposed to ascertain this, by a rule founded on the dimensions of the pelvis. But this method cannot be brought to a sufficient degree of perfection, for the result of cases is much influenced by the size of the child, the pliability of its head, the vigour of the uterus, and other causes. Besides, it is difficult, if not impossible, to determine, with minute precision, the dimensions of the pelvis in the living subject; and they are apt to vary, according as the soft parts within the pelvis are more or less swelled. We shall find it better to judge by the progress which the head has been able to make. If it has not been able to enter the pelvis, or if only a very small part, after great exertion, has been able to enter, then it is not possible for the woman to bear the child, or even to have it brought through entire by the forceps or lever, for these instruments either could not be applied, or, if applied, the resistance

\* The head can bear much more pressure before the child is born than after it has breathed. Respiration is more under the influence of the brain than the action of the heart is, and the action of the latter after birth ceases when the brain is injured or compressed, not because it is directly affected, but because respiration with what it is associated ceases.

would be so great as to prevent their success. It has therefore been laid down as a general rule, that these instruments, and especially the forceps, ought not to be applied, until the os uteri is fully dilated, and the head so low down as to come in contact with the perinæum, and to make it easy to feel an ear. The first part of the rule must always be attended to, and the second is seldom to be dispensed with. It has, indeed, been proposed to increase the length of the forceps, so as to operate with them, whilst the greatest part of the head remained above the brim of the pelvis; but the practice is dangerous and difficult, in proportion to the height of the head. The lever also may be applied, and acted with, when only a third part of the head has entered the pelvis, and consequently before the short forceps can be advantageously employed.(c) Nevertheless, necessity, and not choice, leads us to the use of the lever in that situation. Hemorrhage or convulsions may require it; but in cases of simple contraction of the pelvis, unattended with these symptoms, instruments ought not to be applied, until we have fully ascertained that the head cannot be forced any lower. As long as the pulse is good, and the pains are strong, and produce any effect upon the head, we ought not to interfere. It is the natural consequence of continued uterine action, that after a time the womb should become fatigued, and the pains cease or decrease. I must, however, remind the reader, that the pains may very early become suspended, even in natural labour for hours, without any obvious cause, and without the smallest appearance of danger. No practitioner of discernment can be misled by this, when all other circumstances are natural;

(c) We are here obliged to dissent from the opinion of our author; we believe that the forceps can be more advantageously applied than the lever, even, "when only a third part of the head has entered the pelvis," provided we accurately ascertain its position, and apply the forceps accordingly. The lever, indeed, we would rarely make use of, except to rectify malpositions of the head. We agree with Dr. Osborn, that the "vectis never ought, because it never can, be used with safety when the child's head is not sufficiently low to admit the forceps."

For a full view of the question with respect to the comparative advantage of the two instruments, we must refer the student to Dr. Osborn's *Essays on the Practice of Midwifery*, in natural and difficult labours. Essay IV. Sect. 2.

but if the pelvis be a little contracted, he must be careful to ascertain that the cessation really has proceeded from previous exertion, and not from a temporary cause. When the action flags, and there is no appearance of the fibres recruiting soon; when the woman is much fatigued, and perhaps the pulse frequent and feeble, we can gain no more from delay; we have ascertained what nature can, and what she cannot accomplish. In this case, the head is fixed in the pelvis, the uterus cannot force it down, and the accoucheur can scarcely, if he were willing, raise it up. It is said to be impacted or locked in the pelvis, for it is immoveable; and at the same time, from the pressure, the soft parts are tumefied, perhaps dry and hot, the presentation sometimes distorted, and the bones may be felt making an acute angle with each other. When the pelvis is contracted or deformed, the bones of the cranium gradually yield, and the head is often lengthened very considerably. In every case where pressure is applied, the parietal bones form a more acute angle with each other, their protuberances approaching nearer together, so that, in some instances, the transverse diameter from the one protuberance to the other does not measure above two inches and a half; but the head is not always lengthened in the same proportion. Sometimes, the bones sliding one under the other, its length is even diminished. Children have been brought to me, where, either from the application of instruments, or the action of the uterus, the bones have been separated, and the one parietal bone forced completely beneath the other. From gradual swelling of the integuments, the head sometimes appears to advance when the bones are really stationary. Now, when the head is stationary, and especially if the pains have declined, there is great danger in longer delay, for it is sometimes difficult, if not impossible, to have the bladder emptied; and such injury may be done to the urethra, bladder, and rectum, as to cause sloughing.

There is another state which may require delivery, but which admits of longer delay. In this case, the head is not locked in the pelvis, but after entering it, is stopped or ar-

rested for a long time, either by a slighter deformity at the brim than that which produces locked head, or by some contraction of the outlet, or undue projection of the spines of the ischia, or in consequence of feeble or irregular action of the uterus, produced by various causes. In this case, the head is not absolutely immoveable, the finger can be passed more freely round it than in the former case, and it may advance a little during a pain, and recede when it goes off. Delay, in this case, is not attended with the same risk of injury to the contents of the pelvis ; and we may safely trust to time, light nourishment, mild cordials and rest, until the flagging or cessation of the pains prove that the delivery cannot be expected from the powers of nature, or until a hot and tender state of the vagina indicate a tendency to inflammatory action. It is necessary carefully to distinguish betwixt the paragonphosis or locked head, and the case of arrest, for delay is safer in the latter than in the former. Some practitioners of great experience, justly afraid of the rash application of instruments, have perhaps spoken too indifferently on this subject. Dr. Osborn observes, that in the state indicating the use of the forceps, “all the powers of life are exhausted, all capacity for farther exertion is at an end, and the mind as much depressed as the body, they would at length both sink together under the influence of such continued but unavailing struggles, unless rescued from it by means of art.” Now in cases of locked head, this principle, if fully acted on, must often be attended with dangerous consequences ; and even if restricted to cases of arrest, I must consider it as by far too strongly and rashly expressed.

When the head is locked or firm in the pelvis, and does not advance, we must deliver. The precise time, however, at which we must interfere, cannot be determined by any absolute rule laid down in a system. We have been told, that the head must be allowed to rest on the perinæum for six hours, and then we are to deliver. But much must depend on the state of the pains, and the contraction of the pelvis. It is possible, that before the action of the uterus be nearly exhausted, the cervix

may be ruptured ; and therefore, in a contracted pelvis, when the pain is very severe, and chiefly felt in one spot, as the sacrum, or pubis, when it is acute but unproductive, and the head firmly wedged, the probability of this dreadful accident taking place is so great, as to make it proper to deliver. When the urine is long retained, and cannot be drawn off, we must also interfere sooner than we otherwise would have done. But when the bladder is not distended, the uterus not firmly intercepted between the head of the child and the pelvis, the pains strong and forcing, or not suspended from weakness, and the general strength good, we ought to delay. As long as the pains have any effect, however small, in pressing down the head, and no dangerous symptom appears, we are warranted in trusting still to nature. But when they flag, and the head, after a severe or tedious labour, remains for some hours stationary, it would be dangerous to leave the woman longer undelivered. If the soft parts become swelled ; or if they be dry, hot, and tender, a state which precedes swelling, the child must be delivered ; nay, in some cases, even the crotchet may, from the tenderness and swelling, require to be employed, although the pelvis be not exceedingly deformed. Delay produces inflammation, ending in gangrene. Some, amongst whom is M. Baudelocque, advise, that whenever the head is locked, the woman should be delivered ; and this advice is, upon the whole, a good one, if we be careful to confine the term “ locked ” to that state in which the head cannot be depressed by the pains, or raised by the hand ; for then there is not only great risk of the uterus being ruptured, but also of the soft parts sloughing.

Too long delay, as well as the rash and early use of instruments, may prove fatal to the child.

It is very distressing to attend during the continuance of a severe and protracted labour, and in many cases, it is peculiarly delicate to propose the means of relief. Women have naturally a dread of instruments ; the very name inspires terror, and whatever may be said to the contrary, we know that their use is attended with pain proportioned to the obstacle to be overcome. Some patients urge the adoption of any means

which can abridge their suffering, and are inclined to submit to delivery, in cases where the practitioner can by no means give his consent. But in general an opposite state of mind prevails, and it is not until after much distress that the patient is reconciled to the use of instruments. The result of a labour is for many hours uncertain; on this account, as well as from motives of humanity, no hint ought, in the early part of the process, to be given, of the probability of instruments being required. But as their necessity becomes more apparent, and the time of their application draws nearer, it will be proper to prepare the mind of the relations for what may be necessary, if the delivery be not naturally accomplished. With regard to the patient herself, we must proceed according to her disposition. If she be, from what we have already learned, strongly prepossessed against interference, it will be necessary to give such prudent hints, and such explanations of the practice as relating to others, though not to herself, as will prepare her for her consent. But if we can perceive that she is disposed to agree readily to whatever may be necessary, nothing ought to be said till very near the time, as the anticipation of evil is often as distressing as the enduring of it. When we are to deliver, it is useful to explain shortly and delicately what we mean to do, which has a great effect in calming the mind.

When the pelvis and the child were of a disproportionate size, it was the practice before the forceps were discovered, to endeavour to turn the child, and deliver by the feet, which allowed the practitioner to use considerable force in pulling out the head. But if the resistance was great, the child was killed in the attempt, and often had the body torn away from the head, which was left in the uterus. This gave rise to many inventions and directions for the delivery of the head in these circumstances. If, on the other hand, the child could not be turned, the head was opened, and the crotchet employed. To avoid turning, fillets were used by some; but no material improvement was made in practice, until the discovery of the forceps and the lever, one or other of which was<sup>1</sup> used first in Britain, by Mr. Chamberlain, about the middle of the

seventeenth century. Others afterwards employed them, but still advised turning in preference, if the situation of the head permitted. Turning is now abandoned, and the only point under discussion by accoucheurs is whether the forceps or lever ought to be preferred. I apprehend, that when the head has descended pretty low, and especially in cases of arrest, the forceps may be employed with great advantage; but when the head has not advanced so far as to have more perhaps than a third within the brim, the lever will be more advantageous, unless we use long forceps, but we never can be obliged to use instruments when the head is in this situation, simply on account of contraction of the pelvis; for when the head can be brought through by either instrument, it is always possible for the pains to bring it within reach of the common forceps, and we may wait safely for this, unless convulsions or some sudden and untoward accident happen. The chief superiority, then, of the lever is, that it can be used earlier than the common forceps; for when the head has come so low, as in the generality of cases requiring instruments, either, but especially the forceps, may be employed, with success and safety, by a practitioner accustomed to the application, and well acquainted with the mode of action. There is then only one case in which I admit the lever to be more useful than the common forceps, and this of necessity rarely occurs. In the hands of a prudent and expert operator, each instrument is safe, and capable of completing the delivery. But in making a comparison of the properties of the lever and forceps, in order to assist my pupils in their choice, I have long given it as my opinion, that a young practitioner would be less apt to injure the woman, and less likely to be foiled in his intention, with the forceps, than with the lever, in the generality of cases; for if the forceps be once properly applied, he cannot fail in accomplishing the delivery; but although the lever be applied, he may, if embarrassed, go wrong, and press too much on the soft parts. It has been said, that it is more difficult to introduce the forceps than the lever, for there are two blades in the one case, but only one in the other. We know, however, that the chief

difficulty is met with in applying the first blade, and that the second is introduced in general, very easily. After a little experience, the practitioner may operate with equal facility, and certainly very safely with either instrument; nor do I consider it at all as a point of honour, that he should uniformly confine himself to one in preference to the other; for cases may occur in which particular circumstances may incline him to make use of that instrument which he is least in the habit of employing. Students ought to acquire the power of using both the lever and the forceps, but, generally speaking, I give a decided preference to the latter.

When the lever is to be employed, we are to apply the extremity of the instrument on the mastoid process of the temporal bone,\* or side of the occiput. The woman may be placed on her left side, in the usual posture; and we then, with the fore finger of the right hand, feel for that ear which is next the pubis, and take it as our guide in passing the lever. Three directions must be particularly attended to. The first is, to keep the point of the instrument, during the introduction and operation, close to the head of the child, lest the bladder or rectum be injured. The second is, that the concavity of the instrument be kept in contact with the curvature of the head, by which it will be much more easily introduced than if it be separated to an angle from the head. It will, therefore, be necessary to keep the handle back toward the perinæum, in the beginning of the process; and it will be useful, especially to the young practitioner, to have more than one lever of different degrees of curvature, for he may sometimes be able to introduce one which is very little bent, when one more concave will be applied with difficulty. It is a general remark, that within a certain range, the greater the curvature, the more is the difficulty of introducing it, but the greater is its power over the head. The third is, to attend to the axis of that part of the pelvis, in which the head is placed, and pass the instrument in that course. In the

\* This process is very indistinct in the fœtus, but the direction may still be retained, as it refers to a well known spot.

usual position, the blade will be placed behind the symphysis pubis, or perhaps a little obliquely, and the handle will be directed back towards the perinæum. As the blade is curved at its extremity, and as, in order to get it passed, its surface must be kept in contact with the head, it will be requisite to direct the handle more or less backward, according as the blade is more or less curved; and when it is introduced, the handle will be brought farther forward.

When we act with the instrument, we must not make any part of the mother a fulcrum; and indeed, whatever fulcrum be employed, we ought not to raise the handle much, or suddenly, in order to wrench down the head. Instead, at first, of raising the handle considerably, we rather attempt to draw down the head, as Mr. Giffard did with the single blade of his extractor, using the instrument more like a hook or tractor, than a lever. With the left hand placed upon the shank of the blade, we press it firmly against the head, which both prevents it from slipping, whilst we draw down with the right hand grasping the handle, and also serves as a defence to the urethra, should the handle be a little too much raised like a lever. At first, we should pull or act with the instrument gently, to see that it is well fixed, or adapted to the head. Afterwards we act with more force, but not rashly or unsteadily. These attempts will renew the pains if they had gone off, and then they ought only to be made during the continuance of a pain; for every practitioner knows, that the co-operation of pains adds prodigiously to the utility of the instrument. The head being brought fully into the pelvis, and the face turned into the hollow of the sacrum, we must act in the direction of the outlet; and for this purpose, it will be useful to withdraw the instrument, and apply it cautiously over the chin, which, as less force is now necessary, will not suffer by the operation. Or the forceps may now successfully be applied, and should be used whenever there is necessity for a speedy delivery. Sometimes the natural pains will, without any farther assistance, finish the delivery. We must be careful of the perinæum.

When the forceps are used at first, instead of the lever, we

must, in like manner, take the ear for our guide, passing the first blade over that side of the head which lies to the pubis.\* With the finger of one hand we feel for the ear next the pubis, whilst with the other hand we introduce the blade into the vagina, the handle being directed very much backward. We then cautiously insinuate the blade along the head, and over the ear, moving it upwards with a gentle wriggling motion, until it slip between the head and the pubis. It is then to be moved on, so as to embrace the side of the head completely, in the direction of what I have, in the beginning of this work, called the line of axis, being applied over the parietal protuberance, and the ear. The second blade is to be introduced behind, on the opposite side of the head, and must follow a corresponding line upon it. After this, the handles are to be locked; and in doing this the first blade must often be withdrawn a little to be adapted to the second. They ought not to be tied. I beg it to be remembered, that in the introduction of the blade, both its point and its hollow surface must be kept in close contact with the head, as it

\* I believe that the short forceps, with a single curve, are as useful, and more easily applied, than those which have the blades curved laterally. But if these should be employed, then they must be so introduced, that the convex edge of the blades shall be next to the face, [when that is towards the posterior part of the pelvis, and next the occiput when that is towards the hollow of the sacrum.

By increasing the breadth of the blades, as has been done by Dr. Haighton in the forceps which are called after him, a firmer hold is retained when applied, and it is not necessary to press back the perinæum so far, when the blades are introduced into the axis of the superior strait. They are also very conveniently portable, which is no trivial advantage, as it regards practitioners in the country.

Dimensions of Haighton's forceps, as now made by C. Eberlé, Surgeon's Instrument-maker, Philadelphia.

	Inches.
The whole length - - - - -	11½
Blade from the angle of the joint - - - - -	6½
Handles to the angle of the joint - - - - -	5
Breadth between the blades in the widest part of the curve - - -	3
Breadth of the blade near the point - - - - -	1½
Do. of do. at its centre - - - - -	2½
Do. of do. near the handles - - - - -	2¾]

passes on, otherwise the bladder may be perforated, or the uterus torn by one who overcomes resistance, not by art, but by force. The blade must be passed in the direction of the axis of the brim of the pelvis, and when the instrument is locked, the handles are inclined backward, and the angle or junction of the blades correspond to the central portion of the sagittal suture. If the handles do not join easily, or if they be not placed on corresponding lines, we cannot act, but must adjust one of them before operating. It is apparently unnecessary to direct that no part of the mother be included in the lock, but it is of importance to attend to this in practice. The introduction of the forceps is sometimes followed by a gush of liquor amnii, which may be fœtid and tinged with meconium, although the child be alive.

In this process, we must be deliberate and cautious. We must never restrict ourselves in point of time, nor promise that it shall be very speedily accomplished. If we act otherwise, we shall be very apt to do mischief, or, if we find difficulty, to abandon the attempt. When the pelvis is so contracted as to make it just practicable to introduce the forceps or lever, that part of the head which is above the pubis sometimes projects a little over it, so that we cannot pass the blade until we press backward a little, with the finger, on that part which we can reach. All attempts to overcome the resistance by force, every trial which gives much pain, must be reprobated. But, on the other hand, as long as his conduct is gentle and prudent, the young practitioner must not be deterred because the patient complains, for the uterine pains are often excited by his attempt; or some women, from timidity, complain when no unusual irritation is given to the parts. Slow, persevering, careful trials, must be made; and I beg, as he values the life of a human being, and his own peace of mind, that he do not desist, and have recourse to the crotchet in cases at all doubtful, until it has been well ascertained that neither the lever nor forceps could be used.

The instrument being joined, we pull it downward, and move it a little, to ascertain that it is well applied. We then begin to extract, taking advantage of the first pain.

If the pains still continue, we pull the instrument downward, and, at the same time, move the handle a little forward, toward the pubis ; and then, after halting a second, move it slowly back again, still pulling down. We must not carry the instrument rapidly or strongly forward or backward, against the pubis or perinæum, but the chief direction of our force should be downward, in the direction of the axis of the brim. The motion of the pendulum kind is intended to facilitate this, but, if performed with a free, rapid, and forcible swing, the soft parts must be bruised, and great pain occasioned. The operation of extracting is not to be carried on rapidly, or without intermission ; on the contrary, we must be circumspect, and imitate the steps of nature, [and hence in general we should only act during a pain.] We must act and cease to act alternately, and examine, as we go on, the progress we are making, and also ascertain that the instrument is still properly adapted to the head. The head being made to descend, the face begins to turn into the hollow of the sacrum, and, in the same degree, the handles must move round on their axis ; and when the face is thrown fully into the hollow, the handles must be turned more forward and upward, being placed in the axis of the outlet. The pendulum kind of motion must now be very little, and is to be directed from one ischium toward another. As the head passes out, the handles turn up over the symphysis pubis. In this stage, we must proceed circumspectly, otherwise the perinæum may be torn.

If the fontanelle present, the blades of the forceps are to be placed directly over the ears. If the lever be used, its point will rest on, or near one of the mastoid processes. If the face present, the lever will rest on the back part of the temporal bone, or on the occipital bone ; the forceps will have their points directed toward the vertex, but in face cases, the lever being less apt to slip, is preferable.(d)

(d) We are obliged here again, unwillingly, to dissent from the respectable authority of our author. The forceps, even in face cases, will rarely slip if properly applied. It is generally owing to improper application, not having first accurately ascertained the precise position of the head, that we hear complaints of the forceps not keeping a firm hold.

If the forceps or lever be injudiciously introduced, the bladder or uterus may be perforated; or if the head be allowed to remain too long jammed in the pelvis, some of the soft parts may slough. The under and posterior part of the bladder is apt to slough off, leaving the woman incapable of retaining her urine. This is best prevented, by being extremely attentive in every case, especially in those where the soft parts have suffered much or long from pressure, to evacuate the urine regularly twice a-day, employing, if necessary, the catheter. The parts ought also to be kept very clean, and may be frequently bathed with decoction of camomile flowers.(e)

#### ORDER 2. OF CASES REQUIRING THE CROTCHET.

It unfortunately happens, that sometimes the pelvis is so greatly deformed, as not to permit the head to pass until it has been lessened by being opened.

It is universally agreed, that a living child, at the full time cannot pass through a pelvis whose conjugate diameter is only two inches and a half. It has been even stated, by high authority, that if the dimensions were "certainly under three inches a living child could not be born;" but although this opinion be too frequently correct, yet, like all other general rules, it has exceptions, depending on the original size and peculiar constitution of the child, together with the pliability of the cranium, on the peculiar shape of the pelvis, and the force and activity of the uterus, as well as the general strength of the woman. There have been instances, where, by the efforts of nature, living children have been expelled through a pelvis scarcely measuring three inches; and there are similar examples of the delivery, being under the same conformation,

(e) The rectum likewise, where it passes over or near the projection of the sacrum, may, by long continued pressure of the head, have its life destroyed, and sloughing take place into the vagina, through which the fæces will be discharged. These deplorable effects sometimes follow cases of impaction, or the locked head, where instruments have not been used.

accomplished with the lever or forceps.\* We are not warranted, therefore, to open the head, merely because we estimate that the pelvis does not, in its conjugate diameter, measure fully three inches; but because we have ascertained by a sufficient trial, that the uterine action cannot force down the head, and that the forceps or vectis cannot be applied or acted with effectively. In all cases where the dimensions and circumstances of the case are barely such as to warrant a belief that the head must be opened, an attempt ought previously to be made, not in a careless or hasty manner, but deliberately and attentively, to introduce and act with the vectis or forceps.

We may, however, if the dimensions be much under three inches, be assured, that delivery cannot be accomplished without the destruction of the child. But as it is a matter of great nicety to say whether the pelvis measures three inches, or only two and a half, or two and a fourth, a practice founded on arithmetical directions must be unsafe. In every case, therefore, we ought to allow some time for the pains to produce an effect; and this time should be longer or shorter, according as, in our estimation, the dimensions diminish from three inches to two inches and a half. In such extreme deformity as this, we have no reason to expect that the head can pass, unless it burst,† or be artificially opened; and therefore it should, for the advantage of the mother, be perforated as soon as the os uteri is properly dilated; but until the os uteri is fully opened, no attempt to introduce the perforator can be sanctioned.

\* M. Baudelocque relates a most interesting case, where there were decided marks of the fœtus being dead in utero, and yet these were delusive, for, by the forceps, the woman was delivered of a living child, although the pelvis measured only about three inches. *L'Art des Accouch.* sect. 1898.—Cases in point may also be seen in Dr. Alexander Hamilton's *Letters*, pp. 94, 102, 113.—Similar instances have come within my own knowledge.

† So far as I can judge, the sutures yield sooner than the scalp, and the brain is effused, or pushed out like a bag. When the integuments open first, it is owing, I apprehend, to sloughing from pressure and injury. A very distinct case of spontaneous bursting of the cranium may be found in J. Hamilton's *Cases*, p. 17.

But although it be thus laid down as a general rule, that the pelvis, which measures three inches in its conjugate diameter, may admit a living child to pass, either by the application of the vectis or forceps, or still more rarely by the efforts of the womb, yet it is nevertheless true, that sometimes the child must be destroyed, even when the space is fully three inches. This may become necessary, owing to the great size of the child and firmness of the cranium, or a hydrocephalic state of head;\* or the soft parts in the pelvis may swell so much as to diminish, in an increasing ratio, the size of the pelvis, and effectually to obstruct delivery.† The parts may also be so tender, as to render even a common examination painful, and to prevent the application of the forceps or their effective action, in a case merely equivocal. Alarming convulsions may likewise induce us to perforate the head in a case of deformity, where it is perhaps possible that the vectis or long forceps might succeed, after a greater delay or length of time than is compatible with the safety of the mother; but this combination of evils must be rare. No practitioner, I believe, in this city, [Glasgow,] has met with such a case. At one period, however, the crotchet was employed in cases of convulsions, where the vectis or forceps would now be used.

By the rash and unwarrantable use of the crotchet, living children have been drawn through the pelvis with the skull opened, and have survived in this shocking state for a day or two.‡

To prevent all risk of bringing a living mutilated child to the world, and to avoid, at the same time, killing or giving pain to the child,§ even in those cases which clearly demand-

\* I have seen a cranium so enlarged with water, that when it was inflated after delivery, so as to resume its former size, it measured twenty-two inches in circumference.

† Baudelocque *l'Art. des Accouch.* sect. 1705.—See also a case in point in *Dr. A. Hamilton's Letters*, p. 83.—Every attentive practitioner must, from his own experience, admit the fact.

‡ Vide Mauriceau, obs. 584.—La Motte, case CXC.—*Hamilton's Letters*, p. 153.—*Peu La Pratique*, p. 546.—*Crantz de Re Instrument, &c.* sect. 38.

§ It has been disputed, whether the child in utero was capable of sensation, but both facts and reasoning are in favour of its sensibility.

ed the use of the perforator, some have delayed operating until the child appeared to have been destroyed by the expulsive efforts or other causes, and have therefore been anxious to ascertain the signs by which the death of the child might be known.<sup>2</sup> It was still more desirable to know these, at a time when the forceps were undiscovered. But the signs are in general extremely equivocal, nor is this much to be regretted, for we do not operate because the child is dead, but because it is impossible for the woman to be otherwise delivered.

The steps of the operation are very simple. The rectum, but especially the bladder, being properly emptied, we place the fore finger of the one hand on the head of the child, and with the other hand convey the perforator to the spot on which the finger rests. The instrument, being carried cautiously along the finger as a director, can neither injure the vagina nor os uteri, and in general no difficulty is met with in this part of the operation. Sometimes, however, in very great deformity, the os uteri is placed so obliquely, that it must previously be gently brought into the most favourable, that is, the widest part of the pelvis; and afterwards, the perforator, being placed on the head, must have its handle in the axis of the brim, which may require the perinæum to be stretched back. These points being attended to, the scalp is then to be pierced, and the point of the instrument rests on the bone, through which it directly, or after a momentary pause, is to be carried, (f) either by a steady thrust or a boring motion. It is to be continued in, till checked by the stops. The blades are then to be opened, so as to tear up the cranium; and in order to enlarge the opening, they may be closed and turned at right angles to their former position, and again opened, so as to make a crucial aperture. If the liquor amnii have been well evacuated, and a portion of the cranium have entered the pelvis, the perforation can be made without any assistance; but if the whole of the head be above

(f) Where one of the sutures or fontanelles can be conveniently reached, the operation is facilitated by perforating through these, as must occur to every one.

the brim, it may be necessary to have it kept steady, by pressure above the pubis. It may be proper to add, that if the face present, we must perforate the forehead, just above the nose. If we have turned the child, and wish to open the head, the instrument must be introduced behind the ear.

The brain is next to be broken down, by turning the perforator round within the head. If part of the cranium have entered the pelvis, some of the brain will come out with a squirt, whenever the bones are opened; and at all times we have more or less hemorrhage from the vessels of the brain. Sometimes the blood flows very copiously. The patient is now, if fatigued, to have an anodyne; and at any rate, except in very urgent cases, is to be left for some hours to repose, or to the operation of natural pains. Dr. Osborn, in his elaborate essays, advises, that the head should be opened early, and that we should then delay to extract for thirty hours. In cases of great deformity, decidedly requiring the use of the crotchet, the first direction is important; but where there is any possibility of avoiding the perforation, it ought not to be attempted till the event has proved the necessity. The general principle of the second direction is just, where the first has been acted on, and the strength is good, and no urgent symptom is present: but the delay of the specific number of thirty hours is, in most cases, too long; and I question if it be sufficient to produce, in any case where the child was alive when the skull was perforated, such a degree of putrefaction as materially to facilitate the operation. The chief benefit of delay is, to bring as much of the cranium as possible into the pelvis.

If the deformity have been no more than just sufficient to require the use of the perforator, then, if the pains become strong, it is possible for the head to be expelled without farther assistance. But if the deformity be greater, or the pains weak, then only the pliable part of the cranium will descend, and the face and basis of the skull remain above the brim of the pelvis. In this case, the crotchet is to be introduced through the aperture of the cranium, and fixed upon the petrous bone, or such projection of the sphenoid bone, or

occiput, as seems to afford a firm fixture. We then pull gently, to try the hold of the instrument; and this being found secure, we proceed to extract in the direction of the axis of the brim, by steady, cautious, and repeated efforts, exerting, however, as much strength as may be necessary to overcome the difficulty. In doing this, we must always keep a hand, or some of the fingers, in the vagina and on the cranium, to save the soft parts, should the instrument slip. If the force be steadily and cautiously exerted, we may always feel the instrument slipping or tearing the bone, and have warning before it comes away. We should, in extracting, co-operate as much as possible with the pains.

But it sometimes happens, that the pelvis is so small, as to require the head to be broken down, and nothing left but the face and base of the skull. This is an operation which will be greatly facilitated by the putrefaction or softening of the head, which takes place some time after death. If the child be recently dead, the bones adhere pretty firmly, and, in a contracted space, it will require some management to bring them away. But if the parts have become somewhat putrid, or the child been long dead, the parietal and squamous bones come easily away, and the frontal bones separate from the face, bringing their orbitary processes with them. We have then only the face and basis of the skull left, and if the pelvis will allow these remains to pass, then the crotchet can be used. I have carefully measured these parts, placed in different ways, and entirely agree with Dr. Hull, a practitioner of great judgment and ability, that the smallest diameter offered, is that which extends from the root of the nose to the chin. For, in my experiments, after the frontal bones were completely removed, this did not in general exceed an inch and a half. It is therefore of great advantage, to convert the case into a face presentation, with the root of the nose, directed to the pubis. The size of the crotchet, which ought to be passed over the root of the nose, and fixed on the sphenoid bone, must, however, be added to this measurement. I never have yet been so unfortunate as to meet with what may be considered as the smallest pelvis, admitting of

delivery *per vias naturales* ;\* but I would conclude, that whenever the pelvis, with the soft parts, measures fully an inch and three quarters,† or, if the head be unusually small, the child not being at the full time, an inch and a half, the crotchet may be employed, provided the lateral diameter of the aperture in the pelvis be three inches, or within a fraction of that, perhaps two inches and three quarters, if the head be small or very soft ; and the operation will be easy, as we extend the diameter of the pelvis beyond what may be considered as the minimum. It is scarcely necessary to add, that if the outlet be much contracted, it will make the case more unfavourable ; and where we have any hesitation, owing to the shape and dimensions of the brim, will determine us against this operation.

In this manner of operating, the face is drawn down first, and the back part of the occipital bone is thrown flat upon the neck like a tippet. If we reverse this procedure, and bring the occiput first, and the face last, fixing the instrument in the foramen magnum, then, as we have the chin thrown down on the throat, we must have both the neck and face passing at once, or a body equal to two inches and three quarters. If on the other hand, we fix the instrument on the petrous bone which is certainly preferable to the foramen magnum, and, bring the head sideways, we must have both that bone and the vertebræ passing at once, or a substance equal to two inches and a half in diameter ; and if the head pass more obliquely, then it is evident that the size must be a little more. Although, therefore, Dr. Osborn be correct, in saying, that the base of the cranium, turned sideways, does not measure more than an inch and a half ; yet we must not forget, that when the opposite side comes to pass, the neck passes with it, which increases the size.

\* I cannot learn that any case of extreme deformity in a pregnant woman, such as to render it barely possible to deliver with the crotchet, or necessary to have recourse to the cæsarean operation, has occurred in this city since the year 1775, when Mr. Whyte performed the latter operation.

† M. Baudelocque considers the crotchet as inadmissible, when the pelvis measures only an inch and two thirds.

The head being brought down and delivered, we then fix a cloth about it, and pull the body through; or, if this cannot be done, we open the thorax, and fix the crotchet on it, endeavouring to bring down first a shoulder, and then the arm.

In operating with the crotchet, we must always bring the head through the widest part of the pelvis; but where the deformity is considerable, no small force is requisite. This is productive of pain during the operation, and of danger of inflammation afterwards, which may end in the destruction of some of the soft parts; or affecting the peritoneum, it may prove fatal to the patient. From injury done to the bladder, retention of urine may be produced, which if neglected, is attended with great risk. Incontinence of urine is less to be dreaded, as it is sometimes cured by time. Severe pain in the loins and about the hips, with lameness, is another troublesome consequence. If the patient be not affected with malacosteon, the warm, and at a more advanced period, the cold bath, friction, and time, generally prove successful.

To avoid the destruction of the child, and the severity of the operation of extracting it, the induction of premature labour has been proposed;<sup>3</sup> and the practice is defensible, on the principle of utility as well as of safety. We know that the head of a child, in the beginning of the seventh month, does not measure more than two inches and a half in its lateral diameter; two and three quarters in the end of that month; and three in the eighth month. We know farther, that there is no reason to expect that a full grown fœtus can be expelled alive, and very seldom, even after a severe labour dead, through a pelvis whose dimensions are not above two inches and a half: and lastly, we have many instances, where children born in the seventh month have lived to old age. Whenever, then, we have by former experience ascertained beyond a doubt, that the head, at the full time, must be perforated, it is no longer a matter of choice, whether, in succeeding pregnancies, premature labour ought to be induced. It is certainly easier for the mother than the appli-

cation of the crotchet, and no man can say that it is worse for the child.\* All the principles of morality, as well as of science, justify the operation; they do more, they demand the operation. The period at which the liquor amnii should be evacuated must depend upon the degree of deformity; and where that is very great, it must be performed at a period so early, as to afford no prospect of the child surviving: it must be done in this case to save the mother, or sometimes it may be requisite to use the lever, even when labour has been prematurely brought on. There are cases, and these cases are not singular, where the bones gradually yield, and become so distorted, as at last to prevent even the crotchet from being used. Now, granting a succession of pregnancies to take place in this situation, it follows as a rule of conduct, that if the deformity be progressive, we should regularly shorten the term of gestation, exciting abortion, even in the third month, if necessity requires it, and treating the case as a case of abortion, enjoining strict rest, and plugging the vagina to save blood. Some may say, shall we thus, by exciting abortion, destroy many children to save one woman? This objection is more specious than solid. Those who make it would not, in all probability, scruple to employ the crotchet frequently; and where is the difference to the child, whether it be destroyed in the third or in the ninth month? How far it is proper for women in these circumstances to have children, is not a point for our consideration, nor in which we shall be consulted. I would say, that it is not proper; but it is no less evident, that when they are pregnant we must relieve them.(g)

\* It has been proposed, by low diet, to restrain the growth of the child, but this is a very uncertain and precarious practice.

(g) The reader is referred to a case of premature labour artificially induced, where the child lived for some time after delivery, related by the Editor in the Eclectic Repertory, Vol. I. p. 105, and seq.—See also a paper on “cases of premature labour artificially induced, in women with distorted pelvis, to which are subjoined some observations on this method of practice by S. Meriman, M. D. Physician-Accoucheur to the Middlesex Hospital, &c. &c.” Medico-chirurgical Transactions, Lond. 1812, Vol. III. p. 123, and seq.

Dr. M. concludes, that “In the greater number of instances, indeed, the

## CHAP. VII.

*Of Impracticable Labour.*

IT may be urged against the reasoning in the conclusion of the last chapter, that the cæsarean operation ought to be performed, and, doubtless, in cases of extreme deformity, if the proper time for inducing labour be neglected, it must be performed. But the danger is so very great to the mother, that this never can be a matter of choice, but of necessity. In balancing the cæsarean operation against the use of the crotchet or the induction of abortion, we must form a comparative estimate of the value of the life of the mother and her child. By most men, the life of the mother has been considered as of the greatest importance ; and therefore, as the cæsarean operation is full of danger to her, no British practitioner will perform it, when delivery can, by the destruction of the child, be procured *per vias naturales*. As, in many instances, the woman labours under a disease found to be hitherto incurable, it may be supposed, that the estimate will rather be formed in favour of the child. But, in the first place, we cannot always be certain that the child is alive, and that the operation is to be successful with respect to it : and, in the second place, it ought to be considered, how far it is allowable, in order to make an attempt to save the child, to perform an operation, which, in the circumstances we are now talking of, must, according to our experience, doom the mother to a fate, for which, perhaps, she is very ill prepared.

There are, I think, histories of twenty-one cases, where this operation has been performed in Britain ; out of these only one woman has been saved,\* but eleven children have been preserved. On the continent, however, where the ope-

child will either be dead born, or will be born with so little life as to expire in a few hours ; but in many cases the child has been preserved. Thus out of 47 instances of distorted pelvis, in which this operation had been practised, at least 19 children had been born alive and capable of living."

\* Vide a case by Mr. Barlow, in *Med. Records and Researches*, p. 154.

ration is performed more frequently, and often in more favourable circumstances, the number of fatal cases is much less.\* If we confine our view to the success of the operation in this island, we must consider it as almost uniformly fatal to the mother. This mortality is owing, not only to the injury done to the cavity of the abdomen, and the consequent risk of inflammation, even under the most favourable circumstances, and with the best management; but also to the morbid condition of the system, at the time when the operation was performed; many of the women being affected with malacosteon, which would in no very long time have of itself proved fatal. From this unfavourable view, it may perhaps arise as a question, whether nature, if not interfered with, might not, as in extra-uterine pregnancy, remove by abscess the child from the uterus? It has been said, that this event has taken place; but I do not recollect one satisfactory case upon record. Whenever this has happened, the uterus has either been ruptured, and the child expelled into the cavity of the abdomen; or, in a very great majority of the instances, the child has, evidently from the first, been extra-uterine. We are therefore led to conclude, that the mother who cannot be delivered by the crotchet, must submit to the cæsarean operation, or must inevitably perish, together with the fruit of her womb.

It has been asserted by Dr. Osborn, that this operation, can seldom if ever be necessary; never where there is the space of an inch and a half from pubis to sacrum, or on either side: and that he himself has, in a case where the widest side of the pelvis was only an inch and three-quarters broad, and not more than two inches long, delivered the woman, by breaking down the cranium, and turning the basis of the skull sideways. As the patient recovered, and afterwards, I think, died in the country, where she could not be examined, we cannot say to a certainty what the dimensions of the pelvis were. Dr. Osborn must only speak according to the best

\* According to Dr. Hull, we had when he published, at home and abroad, records of 231 cases of this operation, 139 of which proved successful. Vide Translation of M. Baudelocque's Memoir, p. 233.

of his judgment, I have the highest respect for his character and for his works, and nothing but irresistible arguments could make me doubt his accuracy. But from the statement which I have already given of the dimensions of the head, when broken down at the full time, as well as from the experiments of Dr. Hull, and the arguments of Dr. Alexander Hamilton and Dr. Johnson, I am convinced that there must be some mistake in Sherwood's case. Had the child been brought by the face, there might have been room for it to pass, so far as the short diameter of the passage is concerned; but the lateral diameter is too small for the head, if of the usual size, to pass, in that which I consider as the most favourable position. In the cases related by Dr. Clarke,\* who is a practitioner of the highest authority, we are informed, that the short diameter of the passage did not exceed an inch and a half, but we are not informed of the lateral extent. As the women both recovered, the precise dimensions and construction of the pelvis cannot be determined. It is likewise much to be regretted, that the diameter of the cranium, or cranium and neck, in the state in which they may have been supposed to come through the passage, was not taken after delivery. Where, and only where, it can be ascertained, that the head placed in the position in which it was drawn through the pelvis, does not form, in any part, a substance measuring more than an inch and a half by two inches or three inches, it is allowable to infer, that the cavity through which it passed may have been as small as that.

Finally, this is a question on which, although we may lay down a general rule, we must admit of some exceptions; for a premature, or a very small child, may be brought through a pelvis which will not permit, by any means, an ordinary sized fœtus to pass. But it behoves us, in our reasoning, to judge every child to be at the full time, unless we know the contrary, and to make an estimate on the average magnitude; and until the contrary is proved, by dissection of the mother, or careful and rigid measurement of the child after delivery,

\* Vide Dr. Osborn's Essays, p. 203, and London Med. Journal, VII. p. 40.

I must hold to the position formerly laid down, that the crotchet cannot be used when the child is of the full size, unless we have a passage through the pelvis, measuring fully an inch and three quarters in the short diameter, and three inches in length, or, if the child be premature and soft, an inch and a half broad, and two inches and three quarters long.<sup>1</sup>

The operation itself, although dangerous in its consequences, and formidable in its appearance, is by no means difficult to perform. Some advise the incision to be made perpendicularly in the linea alba, (*h*) others, transversely in the direction of the fibres of the transversalis muscle. Perhaps the precise situation and direction of the wound must be regulated by the circumstances of the case, and the shape of the abdomen; but in general, I apprehend, that the transverse wound will be most eligible. The length of the incision, through the skin and muscles, ought to be about six inches; and if a vessel bleed, so as to require the ligature, it will be proper to take it up before proceeding farther. The uterus is next to be opened, by a corresponding incision; and as the fundus, owing to the pendulous shape of the abdomen, is the most prominent part, the incision will in general be made there, unless the external wound be made lower than usual. The child is next to be extracted, and immediately afterward the placenta. One assistant is to take the management of the child, whilst another takes care to prevent the protrusion of the bowels. In this part of the operation, although pretty large vessels are divided, yet the hemorrhage is seldom great; it has, however, proved fatal. The external wound is now to be cleaned, its sides brought together, and kept in contact by a sufficient number of stitches passed through the skin alone,

(*h*) Mauriceau, Baudelocque, Capuron, Solayres, and the generality of the modern French Accoucheurs and Surgeons who have had the greatest success in performing the Cæsarean operation, prefer making the incision in the linea alba. Cooper agrees in recommending this mode. Vide Dict. of Surgery: Dorsey's Edition, Vol. I. p. 163. Some of the reasons assigned for this preference, are that the incision is made with greater facility and is less painful, because there are fewer parts to be divided; and the hemorrhage is less profuse. The uterus is readily brought into view, and it is cut in its middle portions, and parallel to its principal fibres.

or the skin and muscles, avoiding the peritoneum. Adhesive plasters are to be placed carefully in the intervals; and a bandage, with a soft compress, being applied, the patient is to be laid to rest. An anodyne should be given, to diminish the shock to the system; and our future practice must, upon the general principles of surgery, be directed to the prevention or removal of abdominal irritation or inflammation. The patient may die, although there be very little inflammation of the peritoneum. It has been proposed by Dr. Hull, to whose work I refer for more particular information, to operate as soon as the os uteri is dilated, and before the membranes burst, in order that the wound of the uterus may contract into a smaller size.

In order to supersede the cæsarean operation, and even to avoid the use of the crotchet, it was many years ago proposed to divide the symphysis pubis, in expectation of thus increasing the capacity of the pelvis. This proposal was founded on an opinion, that the bones of the pelvis, either always or frequently, did spontaneously separate, or their joinings relax, during gestation and parturition, in order to make the delivery more easy. In deformity of the pelvis, the symphysis, was first divided by a knife during labour, by M. Sigault, in 1777, assisted by the ingenious M. Alphonse Le Roy. The operation was afterwards repeated on the continent, with various effects, according to the degree of deformity and extent of the separation.<sup>(i)</sup> It has only once\* been adopted in this country, because it is not only dangerous in itself to the mother, but also of limited benefit to the child. We have already seen, that there is a certain degree of deformity of the pelvis, which must prevent a child at the full time, and of the average size, from passing alive, or with the head entire. Now, in a case, where it is barely impracticable to use the lever or forceps, and where it just becomes necessary to open the head,

(i) It has of late again been recommended, by some French writers of eminence: Vide Capuron Cours theorique et pratique, &c. p. 673, & seq. Gardien Traité d'Accouchemens. Tom. 3. p. 20, & seq. & J. B. De Mangeon, De Ossium pubis Synchrondrotomia, Parisiis, 1811.

\* Vide case by Mr. Welchman, in London Med. Jour. for 1790, p. 46.

the division may perhaps save the child, and with less danger to the mother than would result from the cæsarean operation, which is the only other chance of saving the infant. If we increase the contraction of the pelvis beyond this degree, then the chance of saving the child is greatly diminished; and the extent to which the bones must be separated to accomplish delivery, would, in all probability, be attended with fatal effects. In such a case, the crotchet can be employed with safety to the mother, and continues to be eligible, until we find the space so small as to require the cæsarean operation; and in this case, the division can do no good. It cannot even make the crotchet eligible, owing to the shape of the pelvis in malacosteon, and the great mischief which would be done to the parts after the division, by the necessary steps of the instrumental delivery. There is only one degree of disproportion, then, betwixt the head and the pelvis, which will admit of the division, but the smallest deviation from this destroys the advantage of the operation. Now, as this disproportion is so nice, we cannot in practice ascertain it; for although we could determine, within a hundredth part of an inch, the capacity of the pelvis, yet we cannot determine the precise dimensions of the head, and thus establish the relation of the two. On this account, the division of the symphysis pubis cannot be adopted with advantage, either to the mother or child.

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## CHAP. VIII.

### *Of Complicated Labour.*

#### ORDER 1. LABOUR COMPLICATED WITH UTERINE HEMORRHAGE.

DURING labour, there is always a slight discharge of bloody slime, when the membranes begin to protrude; for the small vessels of the decidua, near the cervix uteri, are opened. In some cases, a very considerable quantity of

watery fluid, tinged with blood, flows from the womb, but this is attended with no inconvenience. It may happen, however, that pure blood is discharged, and that in no small quantity. If this take place in the commencement of labour, it differs in nothing from those hemorrhages which I have formerly considered. But occasionally the flooding does not begin, till the first stage of labour be nearly or altogether completed. If the membranes be still entire, it proceeds certainly from the detachment of part of the placenta or decidua, and often is connected with unusual distension of the uterus, from excessive quantity of liquor amnii, or with ossification of the placenta. If the membranes have broken, then we must consider the possibility of its proceeding from rupture of the uterus, and must inquire into the attending symptoms. Sometimes it will be found to proceed from tedious and exhausting labour, from improper exertion, or rude attempts to dilate the os uteri, or alter the presentation; or it may be caused by rupture of the umbilical cord. Now, in this order of labours, the practice is very simple, and admits of little difference of opinion. For every experienced practitioner must admit, that when the hemorrhage is considerable, and is increasing or continuing, the only safety consists in emptying the uterus. If the pains be smart, frequent, and effective, the labour advancing regularly, and there be reason to suppose that it will be finished before the hemorrhage have continued so long as to produce injurious effects, we may safely trust to nature. We must keep the patient very cool, and in a state of perfect rest. But if the pains be weak, ineffective, and rather declining than increasing, whilst the hemorrhage is rather increasing than diminishing, we must deliver the woman, either by turning the child, or applying instruments, according to the circumstances of the case, and the situation of the head.\*

\* The forceps have been recommended, in preference to turning in such cases. They can, however, hardly ever be applied with advantage where labour is so little advanced. It has also been proposed to rupture the membranes, in order that the uterus may contract round the body of the child, and thus suppress the hemorrhage. This suggestion cannot be too much

## ORDER 2. WITH HEMORRHAGE FROM OTHER ORGANS.

When hemorrhage takes place from the lungs or stomach during parturition, we ought to have recourse, in the first place, to blood-letting, or such other means as we would employ were the patient not in labour. If the hemorrhage continue violent, or be increased by the pains of parturition, we must consider, whether artificial delivery, or a continuance of the natural process, will be attended with least exertion and irritation, and consequently with least danger; and we must act accordingly.

## ORDER 3. WITH SYNCOPE.

Syncope may proceed from various causes, such as hemorrhage, or rupture of the uterus; but these cases have been already, or will be considered. It may proceed from a delicate nervous constitution, from long continued labour, from particular states of the heart or stomach, and from passions of the mind. A simple paroxysm of fainting, unless it proceed from causes which would otherwise incline us to deliver, such as tedious labour, flooding, &c. is not to be considered as a reason for delivering the woman. We are to employ the usual remedies, and particularly keep the person in a recumbent posture. Ammoniated tincture of valerian or tincture of opium are useful. But if the paroxysms be repeated, whatever their cause may be, we ought to deliver the woman, if the state of the os uteri will permit. We must be very careful to prevent hemorrhage, after the expulsion of the child.

## ORDER 4. WITH CONVULSIONS.

Convulsions may occur, either during pregnancy or labour, and are of different kinds, requiring opposite treatment. One

discountenanced. If adopted, it would lead to a rash experiment, which could only succeed accidentally, and which in its failure would aggravate the difficulty, and might prevent altogether the turning of the child. C.

species is the consequence of great exhaustion, from excessive fatigue, tedious labour, or profuse hemorrhage. This makes its attack without much warning, and generally alternates with deliquium, or great feeling of depression and debility; the muscles about the face and chest are chiefly affected, and the pulse is small, compressible, and frequent, the face pale, the eye sunk, the extremities cold. The fits succeed each other pretty quickly, and very soon terminate in a fatal syncope. This species naturally requires that we should, first of all, check the farther operation of the exciting cause, by restraining hemorrhage, or preventing every kind of exertion, and then husband the strength which remains, or recruit it by cordials. Opiates are of great service. Delivery is usually necessary.

Hysterical convulsions are more common during gestation, than during labour, and have formerly been described and considered. I have therefore only to say now, that if they do not speedily yield to antispasmodics, venesection must be resorted to, and if that fail, we must deliver the patient.

The most frequent species of puerperal convulsions, however, is of the epileptic kind, which occurs fifty times for once that the others appear. Convulsions may affect the patient suddenly, and severely. She rises to go to stool, and falls down convulsed; or, sitting in her chair, conversing with her attendants, her countenance suddenly alters, and she is seized with a fit; or, she has been lying in a sleep, and the nurse is all at once alarmed by the shaking of the bed, and the strong agitation of her patient. Immediately all is confusion and dismay, and the screams of the females announce that something very terrible has happened. Presently the convulsion ends in a short stupor, from which the woman awakes, unconscious of having been ill; and thus, for a time, the apprehensions of the attendants are calmed. But in a short time the same scene is generally repeated; or, perhaps, although the convulsion has gone off, the stupor remains. It is, however, not unusual for the fit to be preceded by some symptoms, which, to an attentive observer, indicate its approach. These may even exist to a degree which cannot be

neglected. They are, head-ache, which is sometimes dreadful; or acute pain in the stomach, with unsupportable sickness; ringing in the ears; dazzling of the eyes, or appearances of substances floating before them, either opaque, or, more frequently, of a fiery brightness. The pulse is slow, the patient sometimes sighs deeply, or has violent rigours, which, in the second stage of labour, are always hazardous. There is great drowsiness during the pains. It is neither uncommon nor dangerous for the woman to be drowsy between the pains; but here, even during them, she falls into a deep sleep. When the attack comes on, which very often is soon after these preludes appear, the muscles are most violently convulsed, the whole frame shakes strongly, and the face is dreadfully distorted,\* and often swollen. The tongue is much agitated, and is very apt to be greatly injured by the teeth; foam issues from the mouth, and the convulsive inspiration often draws this in with a "hissing noise;" or she snores deeply, and cannot be roused during the fit. The skin becomes, during the convulsion, livid or purple. This attack may end at once in fatal apoplexy, but generally the patient recovers, and is quite insensible of having been ill. Soon, however, the fits are renewed; and if they do not prove fatal, or are not averted by art, they recur with the regularity of labour pains, becoming more and more frequent as they continue. The woman appears to have no labour pains, yet the os uteri is affected, and sometimes the child is expelled, or if the patient become sensible in the intervals, and feel a pain coming on, it appears to be speedily carried off by a supervening convulsion. The fit may last only a few seconds, or may continue with very little remission for half an hour.

Apoplexy may take place at the commencement of labour, or during gestation, without convulsions. In the latter case, the os uteri is rarely affected; but in a few instances it has been found dilated, if death did not take place instantaneously. Copious blood-letting is the principal remedy in this case.

\* Mr. Fynney gives a case, where the lower jaw was luxated during convulsions, which came on in the birth of a second child, or twin. *Med. Comment.* Vol. IX. p. 380.

Convulsions may occur in any period of labour, or before it has begun, or after the delivery of the child; and in this last case, are sometimes preceded by great sickness or oppression at the stomach. Dr. Leak relates the case of a patient who had ten or eleven of these fits; the abdomen was swelled and tense, and she vomited phlegm mixed with blood, which probably came from the tongue. She recovered by means of blood-letting and clysters.

Puerperal convulsions seem to be different from common epilepsy, for they recur at no future time, except perhaps in a subsequent pregnancy. They take place in greater number in a given time, than epilepsy does in general. They often recur exactly like labour pains, or are frequently accompanied, or preceded by them; though when the convulsion comes on, the feeling of pain is suspended, and often, though not always, the uterine contraction is stopt or diminished.<sup>(k)</sup> The same observation applies to excessive rigours, which are, indeed, a species of convulsions, but are not attended with distortion of the face nor insensibility. If the patient be in a state of stupor, she frequently has the countenance distorted at intervals, accompanied with some uterine action. They are preceded by different symptoms, and never by aura; and the patient usually recovers sensibility much sooner, and more completely during the intervals, than in epilepsy. The organs of sense, particularly the ear, are often preternaturally sensible. Sometimes the child is unexpectedly born during a fit.

Convulsions, of the kind I am considering, evidently are connected with gestation or parturition; they occur at no other time, and are more frequent in a first labour. They arise particularly from uterine irritation, but also seem frequently to be connected with a neglected state of the bowels,

(k) Dr. Clarke of London, thinking it necessary, in a case of convulsions, to turn the child and deliver it, a convulsion occurred whilst his hand was in the uterus, when, of course, he had an opportunity of observing how it was affected.—He remarked, that instead of a regular contraction taking place, the uterus seemed to flutter, or, be irregularly and tremulously contracted and relaxed again quickly, and he was disposed to believe, that it was in that state during every case of puerperal convulsions.

a fact to which I wish to call the attention of the practitioner. I shall not, however, enter into the theory, but state the practice, which is of more consequence. The first object is, to prevent the patient from injuring the tongue, by inserting a piece of wood into the mouth; this occupies no time. Next, we bleed the patient, and, if the circumstances of the case will permit, we should open the jugular vein.<sup>(1)</sup> We must not spare the lancet. All our best practitioners are agreed in this, whatever their sentiments may be with regard to the nature of the disease, or to other circumstances. We must bleed once and again, whether the convulsions occur during gestation or pregnancy.\* There is more danger from taking too little blood, than from copious evacuation. Often in a short time, several pounds of blood have been taken away with ultimate advantage. Blood-letting also tends to relax the os uteri. Next, we administer a smart clyster, which, if given early, and during the precursory stage, is of itself often sufficient to arrest the progress of the disease. A smart dose of calomel, or solution of salts, may also be given with advantage, when the person can swallow, especially if the convulsions have occurred during pregnancy, with little tendency to labour. We must also attend to the bladder, that it be emptied, for its distension alone has sometimes brought on convulsions.†

One part of the practice, then, and a most important and essential one, too, consists in depletion, by which the risk of fatal oppression of the brain or extravasation of blood within

(1) Where this cannot be conveniently accomplished, we should detract blood very freely by cupping from the temples and back part of the neck. I have more than once been witness to the best effects resulting from this practice, and therefore must here strongly recommend it.

\* La Motte mentions a case, 225, where a woman, in the last five months of pregnancy, was bled eighty-six times. Sometimes two oz. would relieve her.—By modern practitioners, from 40 to 80 oz. have been taken with advantage, in a case of puerperal convulsions. Puzos insists on the necessity of copious blood-letting and speedy delivery. The practice is adopted by the most judicious of the present day.

† La Motte, 223, 224.—Leak relates a case, where it produced *subsultus tendinum*, and excessive pain at the pubis. Vol. II p. 344.

the skull is diminished, and the convulsion mitigated. But this is not all ; for the patient is suffering from a disease connected with the state of the uterus, and the state is got rid of by terminating the labour. Even when convulsions take place very early in labour, the os uteri is generally opened to a certain degree, and the detraction of blood, which has been resorted to on the first attack of the disease, renders the os uteri usually lax and dilatable. In this case, although we have no distinct labour pains, we must introduce the hand, and slowly dilate it, and deliver the child. I entirely agree with those who are against forcibly opening the os uteri ;<sup>1</sup> but I also agree with those who advise the woman to be delivered as soon as we possibly can do it without violence.<sup>2</sup> There is, I am convinced, no rule of practice more plain or beneficial,\* when evacuation fails to check the convulsions. Delivery does not, indeed, always save the patient, or even prevent the recurrence of the fits, but it does not thence follow that it ought not to be adopted.

Internal remedies have been advised, such as opium, and musk, and camphor ; but experience does not establish their utility when trusted to alone ; nay, where there is fulness of the vessels, the first of these medicines does harm.

If the fits have been only apprehended, but have not taken place, then we may use remedies as preventives. The most beneficial treatment is, to empty the vessels and the bowels. When there are evident symptoms of disordered stomach, a gentle emetic has been advised ; but I have never seen it administered myself, and am, from its effects on the head, not partial to its exhibition. When a violent pain in the stomach takes place, we should bleed and give an opiate. I wish it to be carefully remembered, that when we have head-ache, or any other symptoms indicating a tendency to convulsions, the lancet is necessary. Blood-letting can seldom do harm,

\* Even evacuating the liquor amnii has, M. Baudelocque admits, been of service, §. 1108, 1111. In one case, the os uteri was hard and callous, it was divided, the child speedily born, and the woman immediately became calm, 1112.

it may do much good ; and if this book serve only to impress that fact on the mind of one reader, I will not regret having written it.

When symptoms of nervous irritation exist, without any determination to the head or fulness of vessels, then, after bleeding, opiates may be of advantage.\* Camphor has been strongly recommended by Dr. Hamilton, as the most powerful internal remedy which can be prescribed ; but I cannot from my own observation, say much respecting its virtues as a preventive. But when convulsions have continued after delivery, or when the recovery was not complete, I have found it of service, and recommend it to be always tried. In these circumstances, it is always proper to blister and shave the head. If convulsions take place after the delivery of the child for the first time, then the placenta, if it have not come away, is immediately to be extracted ; and if the pulse do not expressly forbid it, a vein is to be opened, and afterwards, the bowels purged. If the practice be prompt and vigorous, the generality of patients recover from puerperal convulsions.

\* Opiates have been strongly recommended by some practitioners, particularly Dr. Bland. Journ. Vol. II. p. 328, &c.—Dr. Hamilton as strongly prohibits them. Annals of Med. Vol. V.—Petit says, they kill both the mother and the child.

[Dr. Hamilton in an interesting paper on puerperal convulsions, which he terms Eclampsia, [In Annals of Medicine for 1800,] says, that no patient to whose assistance he had been called, who had taken a dose of opium previously to his arrival, had ever recovered. Camphor he strongly recommends, and gives it in doses of from 5 to 10 grains, frequently repeated ; he says that every patient to whom it was possible to give it, recovered.—The Digitalis he has also used with advantage in those cases where œdema existed.

This mode of treating the disease has proved so successful in his hands, that, in the paper above referred to, which is well worthy of perusal, he states, that in 15 months immediately preceeding its publication, he had attended twelve cases of the disease, where the fits had occurred previously to his being sent for ; and although in more than a majority of them, every symptom deemed unfavourable concurred, yet every patient recovered.—This is certainly a favourable result, for Mauriceau relates 21 cases of the disease, 13 of which died. Giffard mentions 4 cases, 2 of which perished.]

## ORDER 5. WITH RUPTURE OF THE UTERUS.

The uterus may be lacerated during labour, under different circumstances, and from various causes. Any part of it may be torn, but generally the rupture takes place in the cervix, and the wound is transverse. Sometimes the uterus is entire, and the vagina alone is torn. This may happen during any stage of labour, and even before the membranes burst,\* but this is uncommon. It may take place when the head has fully entered the pelvis, or in the moment when the child is delivered.<sup>3</sup>

The uterus may be ruptured, by attempts rashly made to turn the child ;† or after the water has been long evacuated, some projecting part of the child may so affect a portion of the uterus, as to make it tear. A certain set of fibres may also be suddenly and spasmodically contracted, and laceration may thus take place. In these cases, there is often very little warning, and the accident may happen when we are just in expectation of a happy termination of the labour.(*m*) In a case detailed by Dr. Douglass, (p. 50.) the head of the child was resting on the perinæum, when the lady, who had been subject to cramp, uttered a violent cry, and the head receded. The child was delivered, but the patient died. Mr. Goldson's patient complained of cramp in the leg, in the intervals of the labour pains ; and in the instant when the rupture happened, she exclaimed "the cramp !" Dr. Monro's patient (Works, p. 677.) was sitting in a chair, when she suddenly screamed, and the uterus was lacerated ; she was not delivered, but lived from Tuesday till Friday. Rigidity of the os uteri may also be a cause of laceration.‡ It dilates very slowly, requires great exertion of the uterine fibres, and the patient suffers much pain. The uterus may at last be torn, even although

\* Vide Mem. of Med. Soc. Vol. II. p. 118.

† A fatal case of this kind is related by Mr. Dease.—One more fortunate in the issue, is inserted in Mem. of Med. Soc. Vol. IV. p. 253.

(*m*) Vide a case by the Editor, inserted in the New York Medical Repository for 1804. Hexade 2, Vol. I.

‡ Perfect's Cases, Vol. II. p. 439.—Hamilton's Cases, p. 138.

the head has partly descended into the pelvis, and the pelvis be large. In this case the liquor amnii is usually discharged before the rupture takes place. The most frequent cause, however, of this accident, is a disproportion between the size of the head and the capacity of the pelvis, by which a portion of the cervix uteri is pinched between the head and the pelvis, and fixed so, that the action of the uterus is directed against this spot, rather than the os uteri. The woman feels very severe pain, either in the back or at the pubis, which during the action of the uterus, augments to an extraordinary degree, and then the part gives way. Another way in which the cervix may be lacerated, is by the linea iliopectinea being so sharp,\* that when the uterus is pressed against it, the parts are either cut through, or so much acted on, that they are in a manner killed, and give way, having a sphacelated appearance. In some cases the rectum, but much more frequently the bladder is opened.

Now, from this view we learn, that those women are most liable to rupture of the uterus, who are very irritable, and subject to cramp; or who have the pelvis contracted, or its brim very sharp; or who have the os uteri very rigid, or any part of the womb indurated. Scholzius relates a case, where it was produced by scirrhus of the fundus; and Friedius one, where it was owing to a carneo-cartilaginous state of the os uteri.(n) Sometimes the uterus seems to be predisposed to this accident, by a fall or bruise. Reidlinus relates one instance of this. Behling, Steidele, and Perfect, furnish us each with another. Salmuthus considers a thinness of the uterus as a predisposing cause of rupture; and Dr. Ross† relates a case where it seemed to have this effect, the womb not being above the eighth part of an inch thick, and tearing like paper.

We are led to anticipate laceration, when the patient is restless, and complains of very severe local pain, subject to

\* In a case of this kind, the line was on one side, as sharp as a fruit knife, and a cartilaginous knob projected from the symphysis. The bladder was torn.

(n) See also a case of similar nature by Dr. M. Anthony. Eclectic Repertory, Vol. IV, p. 496.

† Annals of Med. Vol. III. p. 277.

great exacerbation, and attended with a very acute or tearing sensation. The pains are violent and frequent, and usually do not produce a great effect on the os uteri, which is often very rigid. These symptoms are still more alarming, if the liquor amnii have been fully evacuated. In such cases, it is necessary to detract blood, which relaxes the parts, and then if the symptoms still continue, to suspend for a time, the pains by an anodyne clyster. When this accident does happen, the woman feels something give way within her, and usually suffers, at that time, an increase of the pain. The presentation disappears more or less speedily, unless the head have fully entered the pelvis, or the uterus contract spasmodically on part of the child, as happened in Behling's patient.\* The pains go off as soon as the child passes through the rent into the abdomen; or if the presentation be fixed in the pelvis, they become irregular, and gradually decline. The passage of the child into the abdominal cavity is attended with a sensation of strong motion of the belly, and is sometimes productive of convulsions. The shape of the child can be felt pretty distinctly through the abdominal coverings.

The patient, after this accident, soon begins to vomit a dark coloured fluid, the countenance becomes ghastly, the pulse small and feeble, the breathing is oppressed, and frequently the patient cannot lie down. Sometimes the intestine protrudes through the wound in the uterus, and has even been strangulated in it. These symptoms do not all appear in every case, nor come on always with the same rapidity. In Dr. Ross's patient, although the child escaped through a rent in the vagina into the cavity of the abdomen, and though the nature of the case was ascertained, yet no hemorrhage, fainting, nor bad symptoms, took place; and the child being delivered, the woman recovered.

If the patient be not speedily relieved, she becomes very restless, tosses in the bed, and vomits frequently; complains of a pain in the belly, which becomes swelled, the pulse is rapid, the extremities become cold, and the strength sinks. In every case that I have seen, the intestines were chiefly

\* Haller's Disput. Tom. III. p. 477.

affected, being much inflamed. The interval which elapses between the accident and death, is various; but generally, whether the patient be delivered or not, she dies within twenty-four hours, often in a much shorter time. Steidele, however, relates a case, where the patient lived till the twelfth day; Dr. Garthshore's patient lived till the twenty-sixth day; and in the Coll. Soc. Havn. Vol. II. p. 326, there is the case of a woman, who, after being delivered, lingered for three months.(o)

Different opinions have been held respecting the best mode of treatment. Some have advised the performance of the cæsarean operation, some delivering *per vias naturales*, and others leaving the case to nature. We have instances of all these methods being successful; but the delivery, by turning the child, has advantages over the other modes, and certainly ought, with scarcely any exception, to be resorted to. When the os uteri is dilated before the accident takes place, as is usually the case, and the hand can, without much difficulty, be introduced, it is to be passed through the os uteri, and the rent in the uterus, into the abdominal cavity, in search of the child's feet, which are to be brought down, and the case managed in the same way as in presentation of the feet. When the placenta is extracted, we are to introduce the hand again, to ascertain that no part of the intestines have protruded through the wound. This process is always easy, when the rent is in the cervix uteri or the vagina.

But when the os uteri is rigid and very little dilated before the accident happens, and cannot be opened without extreme irritation, which is, indeed, not often the case, and is rather a state which may be supposed, than actually met with; or when the uterus is spasmodically and violently contracted between the rent and the os uteri, which may happen, if the fundus be lacerated; I am inclined to join with those, who consider attempts to deliver as adding to the danger. These cases, if they ever occur, must do so very rare-

(o) Dr. Douglass's patient recovered after the delivery of the child. Mr. Haden's patient also recovered, after rupture of the uterus. Vide Med. and Chirurgical Transactions, Vol. II. p. 184, and seq.

ly ; but it may happen that deformity of the pelvis prevents delivery. In such circumstances, we must either perform the cæsarean operation, or leave the case to nature. If we have been called early, when the child is yet alive, and before the abdominal viscera have been much irritated by the presence of the fœtus, we are warranted to extract the child by a small incision.<sup>4</sup> If some time, however, have elapsed, then such irritation is often given, as renders it doubtful, if the additional injury of the operation could be sustained. On the other hand, if little irritation be given, and the woman is tolerably well, there is room to hope, that a natural cure may be accomplished, as in extra-uterine pregnancy ; and therefore, as the child cannot be saved now, it may be more prudent to trust to nature.<sup>5</sup>

The cases which admit most easily of delivery, are those where the rent is situated in the cervix uteri or vagina ; and laceration of the vagina is less dangerous than rupture of the uterus,<sup>6</sup> provided the bladder be not injured. I do not think it necessary to make any farther remarks on the laceration of the vagina, as distinct from that of the womb.

When the head is engaged in the pelvis, and cannot recede after the womb is torn, we have other symptoms, indicating rupture of the uterus, or at least the necessity of using instruments. The strength sinks, the pains become useless or go off, the patient vomits, &c.

When, from precursory symptoms, we expect that laceration is about to take place, we must accelerate labour either by turning, or the use of instruments, according to circumstances. This is more necessary if the patient has formerly had the uterus torn.

#### ORDER 6. WITH SUPPRESSION OF URINE.

Suppression of urine may take place during labour, in consequence of the head of the child being locked in the pelvis ; or from a kind of paralytic state of the bladder, produced by long retention of the urine ; or by a small stone, or quantity of mucus, obstructing the urethra. It produces tenderness,

and great pain, in the hypogastric region, which is also swelled. The pain is constant, but is increased during every effort of the abdominal muscles to bear down, because then the bladder is pressed. It is injurious in so far as it tends to impair the uterine action, and it is dangerous on account of the risk of the distended bladder being ruptured by the contraction of the abdominal muscles, or its giving way by a gangrenous rent. The bad symptoms consequent to this event do not always come on instantaneously, and sometimes the bladder still retains a little urine. In a case related by Mr. Hey, in the fourth volume of *Medical Observations and Inquiries*, they did not take place till the second day. The patient was thirsty, vomited, had a frequent desire to void the urine, which she did very suddenly, but not more than a tea cup full at once. The pulse was quick, the belly swelled, and pressure gave her pain. She died about the eighth day, and the bladder was found to be ruptured at its upper part.

When the urine cannot be passed by the voluntary efforts of the woman, aided sometimes by pressing up the head of the child, the catheter must be introduced. The perforations of the instrument, however, ought to be large, as a slimy tough mucus in the urethra, sometimes fills completely those of the ordinary size. If the head should be so jammed in the pelvis, as to prevent the introduction of the catheter, the woman must be delivered. (*p*)

In some cases, although no water is made for a long time, yet no inconvenience is felt; and when the catheter is introduced, very little water is evacuated. This depends upon a diminished secretion; and although, of itself, it cannot determine us to accelerate delivery, yet, should it be attended with other bad symptoms in tedious labour, it may form an additional argument for interfering, as then the functions are becoming impaired, and effusion may take place into some of the cavities.

(*p*) An interesting case of this nature, is related by Dr. Merriman, in *Edinburgh Med. & Phys. Journal* for 1810, and in *Eclectic Repertory*, Vol. I. p. 269, & seq.

# BOOK III.

## OF THE PUERPERAL STATE.

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### CHAP. I.

#### *Of the Treatment after Delivery.*

IMMEDIATELY after the placenta is expelled, the finger ought to be introduced into the vagina, to ascertain that the perinæum or recto-vaginal septum be not torn, and that the uterus be not inverted.

Then, if the woman be not much fatigued, she is to turn slowly on her back, and a broad bandage is to be slipped under her, which is to be spread evenly, and pinned so tightly round the abdomen, as to give a feeling of agreeable support. This bandage is made of linen or cotton cloth; and it is usual to place a compress over the uterus, to assist contraction. The wet sheet is also to be pulled from below her, and an open flannel petticoat is to be put on; it has a broad top-band, and is introduced and pinned like the bandage. A warm napkin is then to be applied to the vulva, and the woman laid in an easy posture, having just so many bed-clothes as make her comfortable. If she desire it, she may now have a little panado, after which we leave her to rest. But before retiring, it is proper to ascertain that the bandage be felt agreeably tight, that there be no considerable hemorrhage, and that the after-pains are not coming on severely. It is also proper to mark the state of the pulse, and to leave strict directions with the nurse, that every exertion, and all stimulants be avoided.

Having thus simply stated what appears to be necessary, I must next say what ought to be avoided. It is customary

with many nurses, to shift the patient completely, and, for this purpose, to raise her to an erect posture. Now this practice may not always be followed by bad consequences, but it is very reprehensible; for the patient is thus much fatigued, and if she sit up even for a short time, hemorrhage or syncope may be produced. The pretext for this is generally to make the woman comfortable; and, indeed, if the clothes be wet with perspiration or discharge, there may be some inducement to shift her. But this ought to be done slowly, without raising her, and if she have been fatigued, not until she have rested for a little. Another bad practice is, the administration of stimulants, such as brandy, wine, or cordial waters. I do not deny, that these, in certain cases of exhaustion, are salutary; but I certainly maintain, that generally they are both unnecessary and hurtful, tending to prevent sleep, to promote hemorrhage, and excite fever and inflammation. A third practice, no less injurious, is, keeping the room warm with a fire, drawing the bed-curtains close, increasing the bed clothes, and giving every thing warm to promote perspiration. This is apt to produce debility, and many hysterical affections, as well as a troublesome species of fever, which it is often difficult to remove. It also renders the woman very susceptible of cold, and a shivering fit is very readily excited. Lastly, gossiping and noise of every kind, is hurtful, by preventing rest, occasioning head-ache or palpitation, as well as other bad symptoms.

At our next visit, which ought to be within twelve hours after delivery, we should inquire whether the patient have slept, and ascertain that the pulse be not frequent, that the after-pains have not been severe, nor the discharge copious. We should also particularly inquire if she have made water; and if she have not, but have a desire to do so without the power, a cloth dipped in warm water, and wrung pretty dry, should be applied to the pubis. If this fail, the urine will often be voided if the uterus be gently raised a little with the finger, or the catheter may be introduced. There are two states in which we are very solicitous that the urine be voided; the first is, when the woman has much pain in the lower belly,

with a desire to void urine ; the second is, after severe or instrumental labour.

A stool should be procured within twenty-four or thirty-six hours after delivery, either by means of a clyster or a gentle laxative. If the patient usually have the milk-fever smartly, or the breasts are disposed to be painful and tense, a mild dose of some saline laxative is better than a clyster. But if she be delicate, and have formerly had little milk, a clyster is to be preferred. If she is not to suckle the child, then the laxative should be rather brisker, and may be repeated at the interval of two days.

After delivery, there is a discharge of sanguineous fluid from the uterus for some days, which then becomes greenish, and lastly pale, and decreases in quantity, disappearing altogether within a month, and often in a shorter time. This is called the lochial discharge. During this time, it is necessary that the vagina and external parts be daily washed with tepid milk and water.

During the latter end of gestation, milk is generally secreted in a small quantity in the breasts, and sometimes it even runs from the nipples. After delivery the secretion increases, and about the third day the breasts will be found considerably distended. Many women, indeed, complain at this time of much tension and uneasiness, and there is usually some acceleration of the pulse. A pretty smart fever may even be induced, which is called the milk-fever. The best way to prevent these symptoms from becoming troublesome, is to keep the bowels open, and apply the child to the breasts before they have become distended. This may generally be done twelve hours after delivery.

The diet of women in the puerperal state ought to be light ; and if they are not to give suck, liquids should be avoided, the food must be of the dry kind, and thirst should be quenched, rather with fruit than with drink. If they are to nurse, the diet, for the first two days, should consist of tea and cold toasted bread for breakfast, beef or chicken soup for dinner, and panado for supper ; toast water, or barley water, may be given for drink, but malt liquor should be avoided. Unless

the patient be feeble, and at the same time have no fever, wine should not be allowed for the first two days; a little may then be added to the panado or sago, which is taken for supper; and a small glass, diluted with water, may be taken after dinner. A bit of chicken may be given for dinner, and in proportion as recovery goes on, the usual diet is to be returned to.

The time at which the patient should be allowed to rise a little, to have the bed made, must be regulated by her strength, and other circumstances. It ought never to be earlier than the third day, and, in a day or two longer, she may be allowed to be dressed, and sit a little; but even in the best recovery, and during summer, the woman ought not to leave her room within a week. She ought not to go out for an airing, in general, till the third week. In cold weather, and when the patient is delicate, she must be longer confined. By rising too soon, and making exertion, a prolapsus uteri may be occasioned, and still more frequently the lochia are rendered profuse, and the strength impaired. If there is, or has formerly been, the smallest tendency to prolapsus, it is absolutely necessary to keep the patient very much for some time in a recumbent posture, on a sofa, avoiding, however, that degree of heat which relaxes the system. It is also necessary to stimulate the uterine lymphatics to absorption by a smart purgative once in the three or four days, to bathe the external parts with rose water, having a third part of spirits added to it, and at the end of a fortnight begin with a tonic, mixed with a mild diuretic.

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## CHAP. II.

### *Of Uterine Hemorrhage.*

IN natural labour, after the expulsion of the child, the uterus contracts so much as to loosen the attachment of the placenta and membranes to its surface, and afterwards to expel them. This process is always accompanied by the dis-

charge of blood, but the quantity in general is small. If, however, the uterine fibres should not duly contract after the delivery of the child, so as to diminish the diameter of the vessels, and at the same time accommodate the size of the womb to the substance which still remains within it; then, provided the placenta and membranes be wholly or in part separated, the vessels which passed from the uterus to the ovum, shall be open and unsupported, and will pour out blood with an impetuosity proportioned to their size and the force of the circulation. This flow will continue until syncope check the motion, or coagula stop the mouths of the vessels.

It is evident that the cause of flooding is the torpor of the uterus.\* The fibres may become inactive, or have their tonic contraction impaired immediately after the pain which expels the child. This will more especially happen if the woman be weakly, if the labour have been tedious, and the child at last expelled suddenly by a strong, but perhaps only momentary contraction.

The hemorrhage, therefore, appears very soon after delivery, and before the placenta has come away. It is profuse, and produces the usual effects of hemorrhage on the system, and these effects are greater and more speedy than those which follow from hemorrhage before delivery, for the loss is instant and extensive. The first gush indeed does not produce great debility, because it consists chiefly of blood, which formerly circulated in the uterus, and is not taken directly from the general system; and the separation of the placenta not being wholly effected at once, the loss at first is more slow. But immediately after this, the effect appears in all its danger; and it is not unusual for the woman, if not assisted, to die within ten minutes after the birth of the child.†

\* When the uterus contracts properly after the delivery of the child, it will be felt, if the hand be applied on the abdomen, like a hard and solid mass; but when torpid, it is not so distinctly felt, for it is softer, being destitute of tonic contraction.

† The patient may die speedily after the birth of the child, in consequence of other causes, some of which it may not be improper to notice. Sudden

If flooding occur after delivery, the woman says there is surely an unusual discharge; and, on examining, it is found to be really so; but at first the pulse is pretty good, and the countenance is not much altered. In a minute, perhaps, the pulse sinks, the face becomes pale, the hands cold, the respiration is performed with a sigh, or after lying quiet for a little, a long sigh is fetched, and the patient seems as if trying to awake from a slumber. She exclaims she is sick, and immediately vomits, she throws out her arms, turns off the bed-clothes, and seems anxious for breath; she complains of cold, or perhaps is restless, and begs not to be disturbed; or lies in a state approaching to syncope, or gazes wildly around her, and is extremely restless, breathes with difficulty, and quickly expires. The danger of flooding is universally known, and the consternation excited by it, is in many cases great. One exclaims the patient is dead, another she is dying, one is wringing her hands, another running for cordials, and it requires no small steadiness and composure in the practitioner to prevent mischievous interference, or procure necessary aid.

The torpor of the uterus is sometimes so great and universal, that when the hand is introduced, it passes almost up to the stomach. At other times, a circular band of fibres contracts spasmodically about the middle of the uterus, inclosing the placenta above it, whilst the rest of the fibres become relaxed. This has not inaptly been called the hour-glass uterus.

From this view it is evident, that flooding is to be prevent-

death may proceed from an organic affection of the heart, such as ossification of the valves or arteries, dilatation of the cavities of the heart, or aneurism of the aorta. The effect of any sudden change in the system, in these cases, must be known to every practitioner. Whenever we suspect such disease, the most perfect rest must be observed after delivery. Should there be any inequality in the size of the two ventricles, the right being larger, for instance, than the left, then any cause capable of hurrying the circulation, may make both sides contract to their utmost, the consequence of which is, that all the blood in the right side is thrown out, but it cannot be received into the left: rupture of the pulmonary vessels must take place, and I have known many instances where the patient was immediately suffocated.

ed by preserving the action of the uterus, and avoiding whatever can increase the force of the circulation. A powerful means of keeping up the action of the womb consists in preventing it from emptying itself too suddenly. It too frequently happens, when the child is instantaneously expelled by a single contraction, being in a manner projected from the uterus, or when the body is speedily pulled out, whenever the head is born, that hemorrhage takes place; and, in a majority of instances, especially if the labour have been severe or protracted, the uterus contracts on the placenta like an hour-glass. Delivery then is not to be hurried, the steps of expulsion, should be gradual, instead of pulling out the body of the child, we should rather retard the expulsion when it is likely to take place rapidly. Those who estimate the dexterity and skill of an accoucheur by the velocity with which he delivers the infant, ground their good opinion upon a most dangerous and reprehensible conduct; and he who adopts this practice, must meet with many untoward accidents, and produce many calamities.

Another mean of exciting the uterine action, is by supporting the abdomen, and making gentle pressure on it with the hand immediately after delivery. I do not say that this practice is in every instance necessary, but it is so generally useful, that it never ought to be omitted. The circulation is also to be moderated by the free admission of cool air, by lessening the quantity of bed-clothes, by a state of perfect rest, and by avoiding the exhibition of stimulants. If these directions, which are few and simple, be attended to, we shall seldom meet with hemorrhage after the delivery of the child. Some women, no doubt, are peculiarly subject to this accident. They are generally of a lax fibre, easily fatigued and fluttered, and subject to hysterical affections. When a woman is known to be subject to hemorrhage, we should give her a full dose of laudanum immediately after delivery, and, on the first appearance of discharge, perhaps in some instances whenever the child is born, we ought to introduce the hand into the uterus, which excites its action, and prevents flooding. We are not to meddle with the placenta, or

endeavour to extract it, our object is to excite the contraction of the womb, and make it in due time expel the secundines. This gives little pain, and may be attended with most important consequences to the future health or comfort of our patient. I need scarcely, I think, add, that in every case, more especially in those where the labour has been tedious, or the woman has been subject to hemorrhage, we ought not to leave the bed-side, but should examine frequently, to ascertain that there is no unusual discharge.

The instant a woman is seized with hemorrhage after delivery, we ought to take steps for exciting the contraction of the uterus, upon which alone we place our hopes of safety.\* Two very powerful means are at all times within our reach. The application of cold, and the introduction of the hand into the cavity of the uterus.

The retention of the placenta is not in general the cause of the hemorrhage, but a joint effect, together with it, of the torpor of the uterus. Our primary object then is not to extract the placenta, but to excite the uterus to brisker action. How improper and dangerous then must it be to thrust the hand into the uterus, grasp the placenta, and bring it instantly away; or to endeavour to deliver the placenta by

\* It is not my intention to advise immediate interference, although the discharge be a little more than usual; but whenever it is considerable, or is affecting the pulse, or producing other perceptible effects on the system, we ought not to delay. It is a fatal error to wait until dangerous symptoms appear: many weeks of suffering, perhaps death itself may be the consequence. I cannot therefore agree with the ingenious M. Le Roy, in the following directions respecting hemorrhage after the birth of the child. "*Quand la femme n'est pas delivrée et qu'il survient une perte, il faut attendre patiemment voir s'il ne se manifeste aucun symptôme alarmant parce que cette perte cesse quelquefois d'elle-même. Mais quand les symptômes sont alarmans et qu'on craint pour la vie de la femme, lorsque la matrice s'engorge et se dégorge alternativement, lorsqu'enfin la femme se plaint d'éblouissemens dans les yeux de tintemens d'oreilles; que les yeux, &c. deviennent convulsifs; que le poulx devient trop petit; que les extrémités sont froides; le visage d'une pâleur mortelle; que le sang traverse le lit; qu'on entend dans le ventre des grouillemens qui annoncent la résolution des forces vitales; alors il faut employer des moyens propres à redonner du ressort à la matrice.*" Leçons, p. 57.

pulling forcibly at the umbilical cord. By the first practice, we are apt to injure the uterus, and certainly cannot rely upon it for checking the hemorrhage. By the second, we either tear the cord or invert the uterus.

When we introduce the hand, we conduct it to the placenta, using the cord only as a director. We do not attempt to bring it away, but press upon it with the back of the hand, to excite the uterus to separate it; or, if it be already detached, and lying loose in the cavity of the womb, we move the hand gently to stimulate the uterus, but neither withdraw it, nor extract the placenta, until we feel the womb contracting.

The contraction of the uterus will be powerfully assisted by the application of cold. The quantity of clothes should be lessened; but our principal object is to apply cold as a topical remedy. Cloths dipped in cold water should be laid suddenly upon the belly, or cold water may be thrown upon it. In obstinate cases it has been found useful to project it forcibly with a syringe. We may in desperate cases dip a sponge or a piece of cloth in cold water, and carry it in the hollow of the hand up to the fundus uteri. Nay, ice itself has, with happy effects, been introduced into the womb. In general, however, the external application of cold will be sufficient to save the patient. I feel confident in advising it, and can say, without reserve, that I have never known any bad consequence result from it.(q)

(q) It appears from a late publication, that a novel mode of restraining uterine hemorrhage, (taking place after parturition) has been attended with success, in Paris. It has been introduced by M. Evrat, and is as follows:—A lemon is deprived of its rind and skin, and its cells exposed over its whole surface. This is introduced into the cavity of the uterus, in the hand of the operator; by this means the blood flowing over the surface of the lemon, can wash off only the juice that it meets with, but the innumerable cells of which the fruit is composed, remain untouched. The contraction of the uterus is soon excited by the presence of the hand, and some drops of the citric acid. It is at this instant, that by forcibly squeezing the lemon, its pure juice flows, without any admixture or dilution; and acts immediately on the internal surface of the uterus. M. Evrat advises, that in withdrawing the hand, the remainder of the lemon should be left in the uterus, supposing that it will excite the regular tonic contraction of the uterine fibres,

The uterus may contract spasmodically like an hour-glass, either before or after the expulsion of the placenta. This spasm of the uterus is accompanied with severe pain in the back, great depression of strength, and a very feeble pulse, sickness, and paleness, and last of all, uterine hemorrhage, which occurs early, and is often profuse; but it is not the sole cause of the sinking and debility, for these often precede, even internal hemorrhage, though they are speedily increased by it to an alarming degree. We are immediately to give a full dose of laudanum in a little wine, and repeat the latter cautiously at intervals, if necessary. We must also without loss of time, introduce the hand into the uterus, and slowly and cautiously dilate the stricture, so as to get the hand into the upper cyst of the uterus, thus stimulating to universal and regular contraction; and, in doing so, we shall be greatly assisted by applying cold water to the abdomen, or dashing water smartly on it from a cloth. If the placenta be still retained, it is to be slowly detached, and after keeping it and the hand for some time in the under part of the womb, both may be withdrawn. Afterwards, the same attention is to be paid to the contraction of the uterus as in the former case.

When it happens that part of the placenta adheres pretty firmly to the uterus, we are not to be rude in our attempts to separate it, but should remember that there can be no danger in being deliberate. It is too much the practice with some midwives, to trust more to their fingers than to the contraction of the uterine fibres; the consequence of which is, that they tear the placenta, and irritate the womb. Yet it is certain, on the other hand, that gentle attempts to separate it are sometimes necessary; but these should be so cautiously and deliberately made, as not to lacerate the placenta. The fingers should be very slowly and gently insinuated betwixt the uterus and the placenta, so as to overcome the adhesion, which is seldom extensive. I have known

and thus prevent any return of the hemorrhage. The uterus, when it contracts completely, will expel the compressed lemon, as happened in a case related in the work alluded to.

the placenta retained for four days, by an adhesion not larger than a shilling. This case proved fatal by loss of blood, which continued to take place, I understand, in variable quantity during the whole time. No attempts were made to relieve the woman, until she was dying.

We can in general easily save the patient in flooding, if we are on the spot when it happens; but if much blood have been lost before we arrive, the strength may be irreparably sunk. In those cases where great weakness has been produced, we must not only endeavour to excite the uterine contraction in order to prevent further injury, but we must also husband well the power which remains. The hand is to be immediately introduced into the womb, and must be kept there, moving it gently, until the fibres contract; and until this take place, neither the hand nor the placenta should be withdrawn. Cold water is to be dashed on the abdomen, gentle pressure is to be made by the hand on the region of the uterus, and the whole belly firmly supported with a bandage, provided that can be applied without moving the patient much. But as every exertion is dangerous, motion must be avoided; and upon no account is the patient to be shifted or disturbed for some time. By imprudent attempts to raise the patient, or "to make her more comfortable," she has sometimes suddenly expired.<sup>(r)</sup>

The state of the stomach is to be watched, preventing, as far as we can, that feeling of sinking which is apt to take place in all floodings. This is to be done by keeping up the action of that important organ with soup, properly seasoned, and given in small quantity, but pretty frequently repeated. Cordials, as for instance, Madeira, diluted or pure, should be given in small doses regularly for some time to support the strength; but after recovery begins to take place, and the pulse steadily to be felt, they should be omitted or decreased; for if persisted in to the same extent, fever or in-

(r) Le Roy thinks the position of the patient in hemorrhages, is worthy of consideration; in uterine hemorrhage, the horizontal position of course must be preferred, and consequently the feet should be more elevated than the head.

flammation may be excited. Opiates are of greater service in all cases of uterine hemorrhage after delivery. They are among the safest and best cordials we can employ, and must in every instance be exhibited. The dose ought to be proportioned to the urgency, varying from fifty to sixty drops. In some instances, when the debility was great, a hundred drops of the tincture, or five grains of solid opium, have been given at once, and afterwards three grains every three hours till the patient was out of danger. Nor does this practice ever prevent the contraction of the uterus, or produce afterwards any bad effect. Opiates supply the place of wine, and are infinitely safer.

We must be careful neither to give nourishment nor cordials so frequent as to load the stomach, which produces sickness and anxiety, until vomiting remedy our error. This last symptom, when moderate, is not always unfavourable, for it sometimes excites more powerfully the contraction of the womb. The rising of the pulse, and relief of the patient after it, is to be ascribed not so much to any direct power which this operation has of invigorating the system, as to the consequent removal of sickness and oppression. If this effect do not follow from vomiting, the case is very bad. Solid opium is the most effectual remedy against repeated vomiting. It must be given in the dose of at least three, and in some cases, four grains.

When the hemorrhage has produced complete syncope, the state of the patient is very alarming. Yet the danger is not the same in every case, for some women faint from slighter causes than others. La Motte relates one case where the patient fainted no less than twenty times in the course of the night. She is to be preserved in a state of the most perfect rest, the face is to be smartly sprinkled with cold water, and a little wine or brandy, or spiritus ammoniæ aromaticus, given after the opiate, rouse the system. Afterwards, warmed spiced wine may be given in small quantity, and warm cloths applied to the feet. Friction on the region of the stomach, with some stimulating embrocation, as hartshorn and spirits, may be useful. I need not add, that the patient must, in

these awful circumstances, be carefully watched ; and that, if the expression be allowed, we must obstinately fight against death.

It was at one time the practice to prevent the patient from sleeping, or indulging that propensity to drowsiness which often follows hemorrhage.\* But we can surely, at short intervals, give whatever may be necessary to the patient, without absolutely preventing sleep, or rather slumber, for the patient never sleeps profoundly. We are to attend so far to the advice, as not to allow the slumber to interfere with the administration of such cordials or nourishment as may be requisite.

When the placenta is rashly extracted immediately after the delivery of the child, or suddenly taken away upon the accession of hemorrhage, then we find that the uterus does not contract properly, and the vessels pour out blood plentifully. This in part escapes by the vagina, but much of it remains in the cavity of the uterus, where it coagulates, and hinders the free discharge of the fluid by the vagina. But blood may be still poured out into the cavity of the womb, which becomes distended, and that often to a great size. Thus it appears, that after delivery the hemorrhage may be sometimes apparent, sometimes concealed. When it flows from the vagina, it is always discovered by the patient ; but when it is confined in the uterus, it is only known by its effects ; the pulse sinks, the countenance becomes pale, the strength departs, and a fainting fit precedes the fatal catastrophe.

Even when the placenta has not been rapidly extracted, hemorrhage may come on, and most frequently it, in this case, proceeds from rash exertion, or much motion. In an uncivilized state of society, we find that almost immediately after delivery, the parent is able to walk about ; but women brought up in the European modes of life, cannot use the same freedom. Motion not only disorders the action of the

\* Even some modern writers have an opinion that sleep is directly injurious. "*Somnus ejusmodi hemorrhagias recrudescere facit.*" Stoll. *Prelectiones*, Tom. ii. p. 400.

uterus, and impairs its contraction, but also powerfully excites the circulation.

The continued application of a great degree of heat, mental agitation, and the use of stimulants, may also contribute to the production or renewal of hemorrhage.

A partial or complete inversion of the uterus, is another cause of hemorrhage, and which can only be discovered by examination.

Sometimes a partial or irregular contraction of the uterine fibres takes place, and the person is tormented by grinding pains, accompanied by repeated hemorrhage.\*

The retention of a small portion of the placenta, which has firmly adhered to the uterus, is also a cause of hemorrhage, and the discharge may be renewed for many days, until the portion be expelled.

It may also happen that, from some agitation of mind or morbid state of body, the uterus may not go regularly on in its process of contraction or restoration,† to the unimpregnated state. In this case, the cavity may be filled with blood, which forms a coagulum, and is expelled with fluid discharge. The womb may remain stationary for a considerable time, and the coagula be successively expelled, with slight pains, and no small degree of hemorrhage. These symptoms very much resemble those produced by the retention of part of the placenta, and cannot easily be, with certainty, distinguished from them. We have, however, less of the fœtid smell, and we never observe any shreds or portion of the placenta to be expelled, whilst the coagulum, if entire, has exactly the shape of the uterine cavity.

\* When the abdomen has been bandaged too tightly, the parts within are injured. The patient is restless and uneasy; the pulse is frequent; she complains of pain about the uterus; and numbness in the thighs. Sometimes the lochia are obstructed; sometimes on the contrary, pretty copious hemorrhage is produced. Relief is obtained by slackening the bandage; by giving an anodyne; and, if there be no hemorrhage, by fomenting the belly.

† This, at first, is owing to muscular contraction; afterwards, absorption forms part of the process. But if these operations shall be interrupted, or injured, then the vessels, which are still large, not being duly supported, will be very apt to pour out blood.

Lastly, we find, that if exertion have been used before the uterus has been perfectly restored, there may be excited a draining of blood, which does not come, in general, very rapidly ; but, from its constant continuance, amounts ultimately to a considerable quantity, and impairs the health and vigour of the woman. This has been called *menorrhagia lochialis*.

When hemorrhage, whether external or internal, takes place, in moderate quantity, immediately after the expulsion of the placenta, and when the system does not seem to suffer materially, we may be satisfied with firmly supporting the uterus by external pressure, and applying a dry cloth closely to the orifice of the vagina. The blood thus coagulates in the uterus, which being supported by the external pressure or bandage, does not distend, and the action of its fibres is soon excited. After-pains are to be expected, but the fear of hemorrhage is removed. In some instances, when we have had no external hemorrhage, and the blood has been slowly poured into the uterine cavity, little inconvenience is produced for some time. But presently, by the pressure of the womb on the neck of the bladder, a retention of urine is caused, attended with much pain in the belly. This is in general instantly removed by introducing the finger into the vagina, and raising up the uterus. If it should not, the catheter must be employed.

But whenever hemorrhage takes place to such an extent as to endanger the patient, and produce the effects I have already mentioned, then we must interfere more actively ; and I need not attempt to prove, that the only security consists in uterine contraction. This is to be excited by the application of cold, and by the introduction of the hand, not simply to extract the coagula, but to stimulate the uterus, and rather make it expel them. Should this be tedious, it may be assisted by the injection of cold water into the womb. We must also proceed with opiates, cordials and nourishment, upon the rules formerly stated for recovery ; and we shall do well, not to be in a hurry to quit our patient, for the hemorrhage

may be renewed, and the woman be lost before we can see her.

When the hemorrhage proceeds from irregular action of the uterus, and is attended with grinding pain, a full dose of tincture of opium is of advantage, and seldom fails in relieving the patient.

If the placenta have been torn, and a portion of it remain attached to the uterus, the hemorrhage is often very obstinate. Both clotted and fluid blood will be discharged repeatedly. An offensive smell proceeds from the uterus, and at last the portion of placenta is expelled in a putrid state, after the lapse of many days. By examination, the os uteri will be found soft, open, and irregular.

If by the introduction of the finger we can feel any thing within the uterus, it should be cautiously extracted; but we are not to use force or much irritation either in our examinations or attempts to extract, lest we inflame the womb. It is more advisable to plug the vagina, and even the os uteri, so as to confine the blood, and excite the uterine contraction. We may also inject some cold and astringent fluid for the same purpose, or throw a full stream of cold water into the uterus, from a large syringe, by way of washing out the portion of placenta, if it have become nearly detached. A gentle emetic sometimes promotes the expulsion. The bowels are to be kept open, and the strength supported by mild and nourishing diet; but we must take care on the other hand not to fill the vessels too fast. If febrile symptoms arise, the case is still more dangerous, as I will presently notice.

When the hemorrhage proceeds from an interruption of the process of restoration, our principal resource consists in exciting the contraction of the womb by the use of clysters—by friction on the abdomen—by injecting cold and astringent fluids into the womb—by the exhibition of a gentle emetic—and by throwing cold water from a syringe upon the abdomen when the womb is expelling the coagulum. We also check the hemorrhage, and save blood, by the prompt application of the plug, and diminish the action of the vessels themselves, by allaying or removing every irritation; by

avoiding the frequent use of stimulants, or attempts to fill the vessels too quickly. The feeling of sinking, sickness, tendency to syncope, &c. are to be obviated by the means already pointed out.

Lastly. The menorrhagia lochialis is to be cured by rest, cool air, the use of sulphuric acid or other tonics, bathing the pubis or back with cold water, and injecting an astringent fluid three or four times a day into the uterus. If the pulse be frequent, the exhibition of the digitalis for a short time will be of advantage. Pain in the back generally attends this disease, and is sometimes so severe as even to affect the breathing. In this case, a warm plaster applied to the back is often of service; and, if the pulse be soft, an anodyne should be administered. In slight cases, the application of cloths dipped in cold vinegar, to the back, does good.

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### CHAP. III.

#### *Of Inversion of the Uterus.*

INVERSION of the uterus implies, that the inside is turned out, and down into the vagina. It may take place in different degrees. When complete, it protrudes out of the vagina, and exactly resembles the uterus after delivery, only the mouth is turned upward. The vagina, is, in this case, also partly inverted, so that the tumour is of considerable length. When it is partial, the tumour is retained altogether, or chiefly within the vagina, and the fundus only protrudes to a certain degree through the os uteri, forming a firm substance, something like a child's head.<sup>1</sup> When the uterus is inverted, the woman feels great pain, generally accompanied with a bearing-down effort, by which a partial inversion is sometimes rendered complete. The pain is obstinate and severe, the woman feels very weak, the countenance is pale, the pulse feeble, and often imperceptible, a hemorrhage very generally attends the accident, and often is most profuse. But it is

worthy of notice, that complete inversion sometimes is not accompanied with hemorrhage,\* whilst a very partial inversion may be attended with a fatal discharge; although there be little hemorrhage, the face is pale, and the pulse weak and rapid. Fainting, and convulsions, are not unfrequent attendants, although the hemorrhage have been trifling. Inversion is suspected to exist from the symptoms mentioned, and on examination, the womb is felt more or less protruded like a mass of flesh, whilst no hard uterus can be discovered in the hypogastrium.

Inversion in a great majority of instances, depends upon the midwife† endeavouring to extract the placenta, by pulling the cord.(s) Sometimes the uterus is directly pulled down, and the placenta still adheres; in other cases, it is separated. It may also happen, if the child be allowed to be rapidly expelled; for if the cord be short, or entangled about the child, the fundus may receive a sudden jerk, and become inverted.

Inversion may terminate in different ways. It may prove rapidly fatal by hemorrhage; or it may excite fatal syncope, or convulsions; or it may operate more slowly, by inducing inflammation, or distension of the bladder; or after severe

\* This was the case, in the instance related by Dr. Hamilton, *Med. Com.* for 1791, Vol. XVI. p. 315.—In the case by Mr. Brown, the hemorrhage was considerable. *Annals of Med.* Vol. II. p. 277.

† Chapman relates a case of inversion, where the midwife pulled forcibly at the uterus, and excited convulsions, fainting and death. Case 29. p. 123.

(s) Or probably, by pulling at the cord before that contraction of the uterus which is to expel the placenta from its cavity, takes place:—hence may be deduced a general rule worthy of the attention of young practitioners, to wait, after the delivery of the child, until the woman complains of pain, (which generally indicates the contraction of the uterine fibres) before they attempt to co-operate in the extraction of the placenta, and even then to act with caution.

An exception may nevertheless occur to this rule to be noticed here, viz. that sometimes the same contraction that expels the child, may detach the placenta, and propel it into the cervix uteri and vagina; this is to be determined by examination; and if found to be the case, we proceed to immediate extraction.

pains and expulsive efforts, the patient may get the better of the immediate injury, the uterus may diminish to its natural size, by slow degress, and give little inconvenience;<sup>2</sup> or it may discharge fetid matter, and give rise to frequent debilitating hemorrhage; or hectic comes on, and the patient sinks in a miserable manner.

If inversion be discovered early, the uterus may be replaced. If it have protruded out of the vagina, it is, first of all, to be returned within it; if it have not, we proceed directly to endeavour to return it within the os uteri, by cautiously grasping the tumour in the hand and pushing it upwards, within the os uteri. This may be facilitated by pressing up the most prominent part of the fundus in the direction of the axis of the uterus, so as gradually to undo the inversion, or re-invert the protruded womb: a piece of wood with a round head has by some been used in this way; but the fingers are safer. If we push directly without compressing the tumour, we sometimes bring on violent bearing-down pains. These are occasionally attended with increase, or renewal, of flooding, and in all cases on pressing the uterus, small vessels spout like arteries in an operation. If we succeed, we should carry the hand within the uterus, and keep it there for some time, to excite its contraction. If the placenta still adhere, we should not remove it until we have reduced the uterus; after which, we excite the contraction of the womb to make it throw it off.\* It is sometimes long before the pulse becomes steadily to be felt.† Occasionally, after the reduction, when the patient is seeming to do well, she is seized with a fit and dies.‡ Or, she may remain long weak, and have swelled feet.§

If inversion have not been discovered early, it is more dif-

\* In a case related in *Memoirs of Med. Soc.* Vol. V. 202, the placenta was allowed to remain five days after reduction, but this is a hazardous practice.—Perfect, case 71, brought it away after four hours.

† Case by Dr. Duffield, in *Trans. of Coll. at Phil.* 167.

‡ Case by Dr. Albert. *Annals of Med.* Vol. V. 390.

§ Mr. White's case, *Med. Comment.* Vol. XX. 247.

ficult, nay, sometimes impossible to reduce it, owing chiefly to contraction of the os uteri.<sup>(t)</sup> Dr. Denman says, that he has found it impossible to reduce it, even four hours after it took place; and in a chronic inversion, he never once succeeded. In such cases, it is not prudent to make very violent efforts to reduce the uterus, as these may excite convulsions, &c. We must in every instance alleviate urgent symptoms, such as syncope, retention of urine, or inflammation, by suitable means. I may further observe, that when a patient, after delivery, complains of obstinate pain, or bearing-down, or suppression of urine, or is very weak, we should always examine per vaginam. If the uterus be inverted we may feel the tumour, and we may find the hard womb to be absent in the belly, or lower down than it should be. If this examination be neglected, the patient may be lost. I have known the first intimation given to the practitioner, to be his finding no uterus in the belly, when it was opened after death. Examination is of the utmost consequence.

When the uterus cannot be replaced, we should at least return it into the vagina. We must palliate symptoms, apply gentle astringent lotions, keep the patient easy and quiet, attend to the state of the bladder, support the strength, allay irritation by anodynes, and the troublesome bearing-down by a proper pessary; the bad effects of neglecting or removing this are to be seen in La Motte's 385th case. If inflammation come on, we must prescribe blood-letting, laxatives, &c. In this way, the uterus contracts to its natural size, and the woman menstruates as usual, but generally the health

(t) In cases of *partial* inversion, where it has been found impracticable to reduce the uterus, it has been advised to grasp the portion which has passed through the os uteri firmly with the hand, and render the inversion complete, by bringing the whole of the uterus into the vagina, and keeping it there. By this means, the danger of strangulation from the stricture occasioned by the contraction of the os uteri on the body of that viscus, is presumed to be prevented. This plan appears to have succeeded in a case related by Dr. Dewees, in the Philadelphia Medical Museum, Vol. VI. p. 20, and seq. Case 2nd.

is delicate. Sometimes the uterus becomes scirrhus, or gangrenous sloughs take place.\*

If the uterus discharge fœtid matter, and hemorrhage take place, the strength is apt to sink, and the patient dies hectic. Astringent applications, with attention to cleanliness, good diet, and the occasional use of opiates may give relief; but if they do not, we are warranted to prefer extirpation of the uterus, to certain death. This operation has been repeatedly successful,<sup>3</sup> and is performed by applying a ligature high up, and cutting off the tumour below. But it must also be remembered, that in some cases where the inverted uterus has been either intentionally extirpated, or mistaken for a polypus,† death has followed.

Inversion, when long continued, may be confounded with prolapsus, or polypus: from the first, it is distinguished by the shape and by the absence of the os uteri; from the second, by examination, and finding the os uteri embracing the polypus.‡ The history will likewise assist in the diagnosis.(u)

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## CHAP. IV.

### *Of After-pains.*

FEW women proceed through the early part of the puerperal state, without feeling attacks of pain in the belly, which

\* Schmucker's Surgical Essays, art. xvii.—A case is given in Med. Journ. VI. 367, where appearance of gangrene, from strangulation, took place. The womb was scarified, and the swelling quickly disappeared. The patient recovered.

† In a case related in Recueil des Actes de la Société de Santé, de Lyon, the uterus was taken for a polypus, and the ligature applied. The mistake being discovered, it was instantly withdrawn, but the woman died in a few days.

‡ In one case the os uteri adhered to the neck of the polypus, and gave rise to appearance of inverted uterus. Mem. of Med. Soc. Vol. V. p. 14.

(u) Inversion of the uterus may be occasioned by the weight of an ex-

are called after-pains. These are generally least severe after a first labour. They proceed from the contraction of the uterus in an irregular manner, excited by the presence of coagula, or other causes, and each severe pain is generally followed by the expulsion of a clot. They come on usually very soon after delivery, and last for a day or two. They are often increased, when the woman first applies the child to the breast. They are distinguished from inflammation of the uterus or peritoneum, by remitting or going off. The belly is not painful to the touch, the uterine discharge is not obstructed, the patient has no shivering nor vomiting, the milk is secreted, and the pulse is seldom frequent. When the pulse is frequent, then we must always be on our guard; for if this be the case before the accession of the milk-fever, the patient is not out of danger, and if any other bad symptom appear, we must be prompt in our practice. After-pains may also be caused by flatulence and costiveness, which we know by the usual symptoms; but a combination of this state, with uterine after-pains, is often attended with a frequency of the pulse, and may give rise to a fear that inflammation is about to come on, but other symptoms are absent. Uterine after-pains are relieved by opiates(x) and fomentations, and if protracted, by a purgative, and this is always proper when the pulse is frequent. A severe constant pain in the hypogastric region is sometimes produced by an affection of the heart, and proves fatal, yet the uterus is found healthy.

Upon this subject, it may not be improper to mention, that

crescence of the nature of polypus, depending from the fundus of the uterus—For a case of this kind together with an *illustrative plate*, see Denman's Collection of Engravings, tending to illustrate the generation and parturition of animals, and of the human species.

The fundus of the uterus was completely inverted, and dragged through the os uteri into the vagina. This case is worthy of consultation.

(x) It is frequently necessary to give the opiate in pretty large doses, and repeat it every few hours; as for instance, 2 grains of purified opium, or 50 or 60 drops of laudanum, where these fail, the best effects are sometimes experienced from an enema of 80 or 100 drops of laudanum, in four table-spoonfuls of thin starch, or infusion of flax-seed. When these do not succeed, the strong infusion or tincture of hops may be tried.

a young practitioner may mistake spasmodic affections or colic pains for puerperal inflammation; for in such cases there is often retching and sensibility of the muscles, which renders pressure painful. But there is less heat of the skin, the tongue is moist, the pulse, though it may be frequent, is soft, the feet are often cold, the pain has great remissions if it do not go off completely, there is little fulness of the belly, and the patient is troubled with flatulence. It requires laxatives, antispasmodics, anodyne clysters, and friction with camphorated spirits. Oil of turpentine acts both as a laxative and antispasmodic. In doses of half an ounce, it often relieves spasmodic pain in the stomach or bowels. Blood drawn in this disease, after it has continued for some hours, even when the woman is not in child-bed, is sisy; and it is always so in the puerperal as well as the pregnant state, although the woman be well.

It is necessary to attend carefully to the duration and situation of pain after delivery, and to the symptoms connected with it. For it may proceed from inflammation of the viscera; or in some cases it is felt near the groin, and may be the forerunner of swelled leg; or about the hip, ending in a kind of rheumatic lameness; or in consequence of the application of cold, pain may be felt in some part of the recti or oblique muscles, which, if not removed by fomentations and frictions, may end in abscess, which frequently is long of bursting, and excites hectic fever. It ought to be opened with a lancet or caustic.

Rheumatism, affecting the muscles of the abdomen and pelvis, is accompanied with less fever than puerperal inflammation, and wants the other symptoms. The pain is shifting and aching, or gnawing, though sometimes it is pretty sharp, like a stitch. It is relieved by friction, with laudanum, by sinapisms, and by mild diaphoretics, bark, and the usual treatment. When speaking of rheumatic pain, it may not be improper to mention, that chronic rheumatism, especially of the extremities, is very troublesome when it occurs after parturition. It requires the usual remedies. Cod-liver oil, in doses of half an ounce, three times a-day, has been much

recommended. I have formerly noticed those pains in the limbs which may succeed the use of the crotchet.

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## CHAP. V.

### *Of Hysteralgia.*

By hysteralgia, I understand uterine pain proceeding from spasm, and not from inflammation. This may occur soon after delivery, and is marked by severe pain in the back and lower belly, frequent feeble pulse, sickness, and faintness. This is sometimes accompanied with discharge, or succeeded by expulsion of a coagulum. It requires an opiate immediately. Another modification of this comes on later, but always within three or four days after delivery, and attacks in general very suddenly. Perhaps the patient has risen to have the bed made, becomes sick, or vomits, and is seized with violent pain in the lower part of the belly, or between the navel and pubis. There is no shivering, at least it is not a common attendant, and the pulse becomes very rapid, being sometimes above a hundred and twenty, the skin is hot, the lochia usually obstructed, and the uterine region is somewhat painful on pressure. After some hours, the severity abates, and presently by proper means the health is restored.

As the lochial discharge is usually obstructed, this obstruction has been considered as the cause of the pain and other symptoms; but it is merely an effect, and sometimes does not exist. The cause appears to consist in a deranged state of action in the uterus, which is productive of spasm in the uterine fibres, and sometimes of the intestines. This is more apt to occur after a severe or tedious, than after an easy labour, but it may occur in any case, especially if exposed to cold. The symptoms will vary a little in severity and in appearance, according as the uterus alone is affected, or as spasm of the bowels is combined with the uterine pain. It is distinguished from inflammation by the sudden nature of the

attack, the absence of shivering in general, the pain becoming speedily more severe than it does at the same period of inflammation; and frequently it greatly remits or goes almost entirely away for a short time. It is possible however, for this state, especially if it be neglected, to excite inflammation, which is marked by an attack of shivering, constant pain, more or less severe, according to the part affected, and an obstinate continuance of the fever.

The first thing to be done, is to administer a turpentine clyster to open the bowels. Then the belly is to be fomented, and if speedy relief be not obtained by these means, an anodyne injection is to be given, and the saline julap is to be taken freely, with the addition of a little antimonial wine, in order to excite a free perspiration. If the symptoms continue, purgatives are useful, and a blister must be applied to the pained part of the belly to prevent inflammation.

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## CHAP. VI.

### *Of Retention of Part of the Placenta.*

IF either the whole, or a considerable portion of the placenta, be left in utero for some time, the patient is exposed to great danger. Hemorrhage is not the only risk, for in many cases, severe head-ache, hysterical affections, sickness, nausea, prostration of strength, and fever have taken place, and continued until the placenta have been expelled, after which the patient has begun to recover. On the other hand, it has, though more rarely, occurred, that the placenta, having been retained for a length of time, has been expelled, before these symptoms have become urgent; but they have afterwards gradually increased, and carried off the patient.\* Sometimes the symptoms run so high, or the portions of the

\* In a case related by Mr. Whyte, the secundines, after a clyster, came away in a putrid state on the fifth day. On the sixth, the patient was much oppressed, had fetid breath, &c. on the twelfth, an eruption appeared, and she died on the twenty-second.

placenta are so obstinately retained, that the patient sinks under the disease, as in ordinary cases of hectic, with frequent small pulse, burning heat of the hands and feet, profuse perspirations, and universal emaciation; or dies with symptoms similar to those of putrid fever; or is carried off suddenly by a convulsion, or an attack of hemorrhage.

These symptoms have a very indefinite duration, for sometimes the patient dies in a very few days; in other instances they are protracted for two or three weeks.\* Sometimes no hemorrhage takes place during the whole course of the disease; but occasionally, repeated hemorrhages do occur, adding greatly to the debility of the patient. In several cases, inflammation has come on, and spread to the intestines. In some of these, the placenta has been afterwards expelled, in others extracted; but very few have recovered. On inspecting the uterus, it has either been found black, as if it had been gangrenous, or in a state of high inflammation, or of suppuration, whilst the parts in the vicinity were in various stages and degrees of inflammation.

Now, when these symptoms have taken place, our object ought to be to remove the cause, and support the patient under the disease. I am aware, that some have attributed these symptoms not to the placenta, but to concomitant circumstances, such as injury done with the hand in endeavouring to take it away. But we find that they take place when the whole of the placenta has been left, without any attempt having been made to remove it. They are produced when any substance is left to corrupt in utero.† They continue as long as it remains, and they usually cease when it is expelled.

It may be proper to examine, with the finger introduced into the os uteri, whether any portion of the placenta can be

\* Dr. Perfect relates a case, in which the secundines were retained till the eighth day, when the patient died. Her stomach rejected all food and medicine, she had weak quick pulse, hiccup, and *subsultus tendinum*. Vol. II. p. 390.—In another case, the placenta was retained till the thirteenth day, and the woman died on the twentieth, p. 381.

† Similar symptoms have been produced by the head of the child being left in utero. Perfect, Vol. II. p. 80.

felt and removed ; but generally this cannot be freely done, for the uterus itself, as well as its mouth, is hard and contracted, and no violent or painful attempt with the hand or finger ought to be made. But when we can easily feel and act upon a portion, we ought slowly and gently to endeavour to bring it out ; and if the whole of the placenta have been left, such attempts are still more necessary, and likely to succeed. The os uteri often affords considerable resistance to the introduction of the hand, in cases where the retention has subsisted for some days ; but by very slow and gentle efforts, such as are scarcely felt by the patient, it may be dilated, and sometimes it yields very easily, or is not at all contracted. If, however, it be rigid and unyielding, we must not use violence ; but this condition is rarely conjoined with retention of the entire placenta.

When a portion of the placenta is retained, we may derive advantage, from injecting, frequently, warm water, or warm infusion of chamomile flowers, or water with a very little muriatic acid added to it. These injections may be made, by fixing a female catheter to an elastic-gum bottle ; or a syringe with a long pipe may be employed.

Sometimes natural or artificial vomiting assists the expulsion.

The patient should be allowed the free use of fruit and vegetable acids, and light mild diet should be given in small quantity at a time. The bowels ought to be kept open, and opiates should occasionally be given to allay irritation. Vomiting and nausea may be checked or mitigated when urgent, by effervescing draughts. Bark, in small doses, has been given, but I cannot place much confidence in it. When there is a fulness about the abdomen, and tendency to inflammation, purgatives are of service. When the nervous system is much disturbed, the camphorated mixture may be given in its usual dose.

## CHAP. VII.

*Of Strangury.*

AFTER severe labour, the neck of the bladder and urethra are sometimes extremely sensible ; and the whole of the vulva is tender, and of a deep red colour. This is productive of very distressing strangury, which is occasionally accompanied with a considerable degree of fever. It is long of being removed, but yields at last to a course of gentle laxatives, opiates, and fomentations. Anodyne clysters are of service.

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## CHAP. VIII.

*Of Pneumonia.*

IT is unnecessary to detail the symptoms of inflammation of the lungs or pleura. It is sufficient to say, that this disease is not uncommon in the puerperal state ; and if there be such a state of the lungs during pregnancy, as tends toward phthisis, that disease is exceedingly apt to be rapidly induced after delivery.

Pleurisy requires on the first attack copious blood-letting, laxatives, and blisters, which are never to be omitted. If the early stage have passed over, the use of the lancet is doubtful, and it is better to trust to digitalis given freely, and the application of blisters. Laxatives are also not to be neglected.

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## CHAP. IX.

*Of Spasmodic and Nervous Diseases.*

PALPITATION is not an uncommon disease after delivery. It usually attacks the patient suddenly, and often after a slight alarm. She feels a violent beating in the breast, and some-

times has a sense of suffocation ; she has also a knocking within the head, with giddiness, and a feeling of heat in the face. The pulse is extremely rapid during the fit, and the patient is impressed with a belief that she is going to die. After the paroxysm, the mind is left timid, and the body languid. Sometimes it is succeeded by a profuse perspiration ; and should the fits be frequently repeated, the temperature is variable during the intervals, and the stomach is filled with gas. This is often a very obstinate, but it is not a dangerous disease, unless it proceed from uterine disease, marked by pain and swelling of the belly. It is to be relieved by giving, during the paroxysm, a liberal dose of ether and laudanum ; and during the intervals, antispasmodics, laxatives, and tonics are to be employed. As soon as possible, the patient should remove to the country.

Hysteric fits, hiccup, syncope, and dyspnœa, are to be treated upon general principles, by full doses of opium, and other antispasmodics, and clearing out the bowels with purgatives.

There is a species of dyspnœa, that depends upon exertion of the muscles of respiration during labour, or distension of the abdominal muscles. When the abdominal muscles are affected, the person often feels the difficulty of breathing, chiefly during expiration. It is relieved, by tightening a little the compress round the belly, and giving thirty drops of laudanum. When the diaphragm is affected, the uneasiness is usually greatest during inspiration ; and there is often a pain in the side, or in the back, or about the pit of the stomach, which may be very severe. It is attended, sometimes, with a sense of stuffing in the breast ; in other cases, with an acute feeling of suffocation, or very sharp pain across the lower part of the thorax, with deadly paleness, and the pulse is extremely rapid. A very large dose of laudanum, with ether or volatile tincture of valerian removes the spasm ; if not, a sinapism must be applied. These affections come on within a few hours after delivery. The spasm of the diaphragm is to be distinguished from pleurisy, by its coming on suddenly, and being very acute ; whereas, inflam-

mation comes on more slowly, and is often preceded by a shivering fit; there is more cough, and the pulse at first is not so frequent, but is sharp.

Dyspnœa is also occasionally produced by the roller being too tight.

Colic may occur within a few days after delivery. It attacks suddenly, and generally in the evening. It is not preceded by shivering, but is sometimes accompanied with sickness. The pulse may at first be either slow or of the natural frequency, but soon becomes frequent. The pain is subject to exacerbation and remission, but sometimes does not entirely go off for several hours. The chief risk of this disease is the induction of inflammation, if the irritation be not soon removed. The best remedy is, half an ounce of oil of turpentine. I was led to employ this remedy in painful affections of the stomach and bowels not dependent on inflammation, from witnessing its excellent effects in the hands of veterinary practitioners, and from observing its safe and purgative quality on the human bowels, when given as a cure for tœnia. If the turpentine fail, a large dose of laudanum is to be given in a clyster, and fomentations are to be used at the same time. It is generally beneficial to precede the anodyne by a saline clyster. If the symptoms do not go entirely off, the saline julap with laudanum is of service. If there be much flatulence, tincture of asafœtida and hyoscyamus are proper. Cramp in the stomach is very dangerous, when it occurs within three weeks after delivery. It requires the immediate exhibition of turpentine, and if that fail, of at least sixty, perhaps a hundred drops of laudanum, with a drachm of sulphuric ether, or two drachms of spiritus ammoniæ aromaticus; a sinapism is also to be applied to the region of the stomach.

Pain in the region of the kidney sometimes proves very troublesome for two or three days after delivery. It comes in paroxysms, which are relieved by sinapisms, fomentations, clysters, purges, and opiates.

## CHAP. X.

*Of Ephemeral Fever or Weed.*

THE increased irritability of the system, as well as the delicacy of particular organs after delivery, render women at that time peculiarly liable to febrile affections. Some of these seem to arise from the general irritability of the whole nervous system, others from local affection of the breasts, the bowels, or the uterus. The first of these symptomatic fevers, is generally pretty easily recognised by the sensibility of the breast; the others, particularly that connected with the state of the womb, are often more ambiguous, the local symptoms being in many cases insidious.

The ephamera, or weed, as it has been called, is a fever usually of short duration; the paroxysm being completed generally within twenty-four, and always within forty-eight hours; for if it continue longer, it becomes a fever of a different description. It proceeds from great susceptibility of the nervous system, by which slight exposure to cold, mental agitation, or similar causes, excite a universal disorder of the frame. It consists of a cold, a hot, and a sweating stage; but if care be not taken, the paroxysm is apt to return; and we have either a distinct intermitting fever established, or sometimes, from the co-operation of additional causes, a continued, and very troublesome fever is produced.

This disease, which in its simplest form is very much of a nervous nature, generally makes its attack within a week after delivery. It may be excited by exposure to cold, irregularities of diet, fatigue, exhaustion, passions of the mind, or want of rest. It is sometimes directly ushered in with a fit of palpitation, or is excited by a frightful dream, from which the patient awakes in a shivering fit, with a rapid pulse; or the chill comes on, accompanied with pain in the back and head, after some slight alarm, or injudicious exposure to cold. When the cold stage has continued for some time, the hot one commences, and this ends in a profuse perspiration, which either carries off the fever completely, or

procures a great remission of the symptoms. The head is usually pained, often intensely, especially over the eyes, in the two first stages. The pulse is extremely rapid, until the third stage has continued for some time; it is also subject to very great irregularities, and is very changeable in its degree of frequency. The thirst is considerable, the stomach generally filled with flatus, and the belly bound. The mind often is weakened, and the patient is much afraid of dying. In some instances, she is slightly delirious; in others, she has shifting pains in the abdomen. If the paroxysm be repeated, the secretion of milk is diminished.

The paroxysm continues for some hours, and then may completely go off, not to return again. But in other cases, it recurs frequently, being always preceded by a cold fit, and often with a pain in the back; and sometimes the fit begins regularly one or two hours sooner every succeeding day. It is more favourable when the fit postpones. When this disease is not combined with any local injury, it is less dangerous than most fevers occurring in child-bed; but if it recur very frequently, and be attended with much debility, the danger increases in proportion to the continuance of the disease. Local derangement is apt to take place very suddenly in the course of this ailment; the breasts are peculiarly liable to become inflamed. A fatal termination is usually preceded by a coma, or vomiting of dark-coloured matter.

Delicate women, and those who have suffered much in parturition, are chiefly affected with this disease, but all are more or less liable to it.

It is distinguished from symptomatic fever arising from local inflammation, by the absence of the particular pain, and other specific symptoms, which attend these fevers, whilst in them the pulse is usually at first not so rapid as in the ephemeral fever.

In the cold stage, we give small quantities of warm fluid, and apply a bladder filled with warm water to the stomach, or a warm flannel to the back, on the commencement of the chilliness; or, if the patient be sick, and have a foul tongue, a gentle emetic of ipecacuanha will be useful. If this be not

required, we give a smart dose of calomel amongst the first acts of our practice. Having hastened on the hot stage, we lessen very cautiously the number of the bed-clothes, and give saline julap with diluents, to bring on the sweating stage. When this is done, we are careful not to encourage perspiration too much, which increases the weakness, or brings out a miliary eruption, and renders the disease more obstinate. On the other hand, if the perspiration be too soon checked, the fever continues, or recurs more severely; a gentle sweat may be kept up for five or six hours by tepid fluids. Then we refrain from them; and when the process is over, the patient is to be cautiously shifted, the clothes being previously warmed. After the fit, if the patient is exhausted, a little wine may be given. In the whole paroxysm, we must watch against the sudden application of cold, which, in the two last stages, renews the shivering. When the fits recur, we may sometimes check them, by giving an opiate an hour before the expected time of accession, and applying warmth to the back and stomach the moment the chilliness is felt. It is of great consequence to keep the bowels open, by aloes combined with hyoscyamus, calomel, &c. Tonic medicines, such as bark, sulphuric acid, and chalybeates, are useful; and in some cases valerian may be joined to these with advantage. Sleep is to be procured by opiates. During the whole time, the strength must be supported by suitable diet; and as soon as possible, the patient should be carried to the country. If the fits return often, it is generally necessary to give up nursing.

If derangement of any organ should take place by the recurrence of this disease, or during the course of a first attack, it must be treated on general principles; and it is to be recollected, that the nature of the complaint is now changed, and the organ which is disordered claims our chief attention. Very frequently the breasts suffer, or the womb itself may be attacked. But we must be careful to distinguish such a modification of weed from a symptomatic fever, beginning like weed, but altogether arising from the state of the womb, or other organs. The distinction is important,

that no time be lost in combating the disease; which in the one case does not at first exist, in the other, is present ab origine. When the local affection is acute, the diagnosis is easy; but I wish it to be impressed on the mind of my reader, that it may also be mild, and require attentive inquiry to ascertain it satisfactorily.

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## CHAP. XI.

### *Of the Milk Fever.*

THE secretion of the milk is usually ushered in with a slight degree of fever, or, at least, a frequency of the pulse. But sometimes it is attended with a smart febrile fit, preceded with shivering, and going off with a perspiration. This attack, if properly managed, seldom continues for twenty-four hours; and during this time, the breasts are full, hard, and painful, which distinguishes this from more dangerous fevers. Sometimes, during the hot fit, there is a slight delirium. A smart purge generally cures this disease, and is often used, in plethoric habits, on the third day after delivery, to prevent it. Mild diaphoretics, during the hot stage, are also proper. Applying the child early to the breast is a mean of prevention.

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## CHAP. XII.

### *Of Miliary Fever.*

THE miliary fever begins with chilliness, sickness, languor, sometimes amounting to syncope, and frequency of pulse, with heat of the skin. There is also a sense of prickling or itching on the surface; and sometimes the extremities are numbed. The febrile symptoms usually continue for some time, before the eruption appears, often for four or six

days. Previous to the eruption, the patient feels very much oppressed, and has a great weight about the chest; the spirits are low, and a sour smelled perspiration takes place in a profuse degree. The eyes are occasionally dull and watery, or inflamed, and the patient has ringing in the ears. The tongue is foul, and its edge red as in scarlatina. Aphthæ sometimes appear in the throat. The lochial discharge is diminished or suppressed. Before the eruption is seen, the skin feels rough like the cutis anserina. Presently a number of small red pustules appear like millet seeds, which are felt with the finger to be prominent. In a few hours, small vesicles form on their tops, containing a fluid, first straw coloured, and then white or yellow. In two or three days small scabs form, which fall off like scales. The pustules are generally distinct, but sometimes they form clusters. They appear first about the forehead, neck, and breast, and then spread to the trunk and extremities, but very rarely affect the face. Different crops of pustules may come out in the same fever. Burserius, and others, divide the pustules into several varieties; but most writers are satisfied with two, taken from the general appearance, the red and the white, and the first is attended with a milder disease than the second.

This disease is peculiarly apt to attack those who are weakened by fatigue, evacuations, or other causes: and hence we can easily explain, why women in child-bed should be subject to it.

Some have considered the eruption as altogether dependent on the perspiration. Others consider it, as in many cases, idiopathic; and both, perhaps, at times are right. We can only consider the disease as idiopathic, when the eruption mitigates the symptoms, when the fever goes off as the pustules arrive at maturity, and there is no other puerperal disease present, acting as an exciting cause. It does not appear to be contagious, unless connected with a fever which is so of itself, such as typhus.

Miliary eruption also occurs during child-bed, as a symptom connected with puerperal diseases. It often accompanies

the milk-fever, or the weed, when the perspiration is injudiciously encouraged ; and this is by far the most frequent form, under which the febris miliaris appears. It never alleviates the symptoms. It may also accompany fevers connected with a morbid state of the peritoneum or brain, which generally prove fatal ; death being preceded by vomiting of dark-coloured fluid. Women, much reduced, have also partial miliary eruptions, generally of the white kind, without fever, which require no particular treatment.

Whether the miliary fever be idiopathic, or symptomatic, the treatment is the same. We endeavour, at first, to check or remove the fever, by means which I have pointed out in a former chapter.

When profuse perspiration, with or without eruption, takes place, we must cautiously abate it, by prudently lessening the quantity of bed-clothes, or making the bed-room cooler. The rest of the treatment consists chiefly in removing irritation from the intestines by the use of laxatives, and supporting the strength by light nourishing diet, whilst we use tonics, such as sulphuric acid or bark. These tend also to abate the perspiration, which is scarcely ever to be encouraged. The linen should be frequently changed. When the eruption suddenly recedes, we have been advised to renew the perspiration, apply blisters, and give musk and cordials, especially when convulsions are threatened. This dangerous retrocession, however, I have not met with, and apprehend that it very rarely occurs.

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## CHAP. XIII.

### *Of Intestinal Fever.*

WE shall presently have an opportunity of observing, that the state of the bowels frequently produces in children a very troublesome species of fever, which, though proceeding from a cause which has been some time in existence, makes its ap-

pearance suddenly. The same holds true with regard to women in child-bed, who, either from previous torpor or costiveness of the bowels during the end of gestation, or some error in diet after delivery, are seized, within eight or nine days, generally earlier, with fever, which passes for weed.

After an attack of shivering and chilliness, the patient becomes sick, oppressed at the stomach, and loathes food. The pulse is frequent, and the skin, except at the feet, feels, from the very first, hot to the touch of another person, though the woman herself complains of being cold. Afterwards she feels very hot, especially in the hands and feet ;—she has no appetite,—is thirsty, has a white slimy tongue, is sick,—and occasionally vomits phlegm or bile, and is troubled with flatulence. The pulse is quick ; she does not sleep, but rather slumbers, and is tormented with dreams and visions, and talks during her slumbers. Generally she complains of throbbing, often of confusion, but seldom of continued pain in the head, though for a short time head-ache may be severe. She has no fixed pain, nor any tumour in the belly, but complains rather of stitches or griping. The bowels may either be costive or loose ; but in either case, the stools are foetid and dark-coloured ; and in general, laxatives operate both early and powerfully. The lochial discharge is not necessarily obstructed, nor does the secretion of milk, in many instances, suffer for several days. The eye and the countenance are nearly natural. The belly sometimes, in the course of the disease, becomes full and soft, as if the bowels were inflated, and this size occasionally continues during life. These symptoms may be complicated with others, proceeding from nervous irritation, such as palpitation, starting, &c. or in the course of the disease, new ones arising from injury of the function of the womb, may supervene, and are marked first by pain, and afterwards by tumefaction of the lower part of the belly, and pain in making water, or on passing the fæces. The duration of this fever varies from a few days to a fortnight.

On the first appearance of this fever, a gentle emetic of ipecacuanha should be administered ; and afterwards, when

the operation is over, we determine to the surface, by giving the saline julap with tepid drink. Then, in a few hours, we administer a dose of rhubarb and magnesia to remove offensive matter from the bowels; or, if necessary, we give a suitable dose of castor oil, or calomel. After this, if there be considerable griping, or a tendency to much purging, we give an opiate-clyster, and repeat this every night till the bowels are less irritable, taking care, if they become costive, or the stools fœtid, to interpose, occasionally, gentle laxatives. The great principle indeed on which we proceed, is the early and prompt evacuation of the offensive matter, whether bilious or feculent, from the bowels, and the prevention of re-accumulation, and this must be done by such doses as are required. The diet must be very light, such as beef-tea, calves feet-jelly, arrow root, &c. and if there be no diarrhœa, ripe fruit may be given. Ginger wine and water forms an excellent drink, and in a few days, such a quantity of Madeira wine may be given, as is found to impart a comfortable feeling, without inducing heat or restlessness. When the tongue becomes clean, small doses of colomba, or other biters will be useful. If there be much nervous irritation or palpitation, or tendency to delirium, the camphorated julap is proper.

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## CHAP. XIV.

### *Of Inflammation of the Uterus.*

INFLAMMATION of the womb may appear under two forms, the slight and the extensive. This is a distinction which those who are not much conversant in practice, may not be disposed to admit; but it will, nevertheless, be useful to describe them separately. The first begins within the 9th day, very like the ephemeral fever, and is considered by the nurse as a weed. The patient shivers, feels cold, is sick, and perhaps vomits. The pulse is frequent, but not hard nor sharp, the

skin becomes warm, and between the cold and the establishment of the hot stage, the patient complains of a dull pain in the lower part of the belly. It is not constant, and is apt to pass for after-pains. The lochial discharge continues, and the secretion of milk is not checked. The pain at first, and usually during the whole course of the disease, is slight, it is generally felt near the pubis, but it may also extend a little to one side, or toward the groin. Sometimes there is pain in the back, but frequently there is none, unless when the patient sits up. The pain in the belly very soon is not perceived when she lies still, but is felt when she turns, or when pretty considerable pressure is made with the hand, or occasionally one or two sharp pains dart through the uterine region. There is no hardness to be felt, and the belly is not tender, but becomes a little full; the lochial discharge gradually diminishes, but does not of necessity stop, and the milk sometimes continues plentiful. There is considerable thirst, no appetite, and the sleep is disturbed. The pulse, which at first is very frequent, falls in a day or two to 100, or varies from 90 to 108. The head is confused rather than painful, slight wandering pains may be felt in the belly or sides. The bowels are generally affected, being at first rather bound, afterwards loose or irregular, and the fæces dark, slimy, or fætid. Sometimes there is a degree of strangury. In the course of a fortnight, the pulse becomes slower, the appetite gradually returns, and these circumstances are preceded or accompanied with a slight discharge of blood from the womb, or of purulent matter by the rectum, or from the vagina. Sometimes the disease is much shorter in its course, being little more protracted than an ephemera, the symptoms yielding completely to the treatment; or they may be removed in so far, as that all fever and pain go off; but when the patient comes to rise, she feels a pressure like prolapsus uteri, which continues for many days or even weeks, so that she cannot stand, but has an instinctive desire to run to a seat. It is not easy to distinguish this state from prolapsus, except by examination. The uterus is felt in its proper altitude, but often the os uteri is turned a little to one side, and the vagina

is not lax, but may be rather rigid: pessaries give little or no relief. The complaint continues obstinate, preventing the patient from walking, though she is in good health, until a little purulent matter, or still more frequently, a little blood like the menses is discharged, and then she is almost instantly cured.

The treatment of this species of uterine inflammation consists in exciting early a free and pretty copious perspiration, fomenting the belly, and opening the bowels with a smart purge. If the pains be more permanent, blisters may be necessary, and blood-letting, early employed, is useful, but most cases of this partial nature recover without the use of the lancet, merely by cuticular and intestinal evacuation.

The more serious and extensive inflammation of the uterus, may be excited in consequence of rude management, or other causes. The disease usually begins between the second and fifth day after delivery, but it may take place at a later period. It is pointed out by a pain in the lower part of the belly, which gradually increases in violence, and continues without intermission, though it is subject to occasional aggravations. The uterine region is very painful when it is pressed, and it is a little swelled. There is, however, no general swelling of the abdomen with tension, unless the peritonæum have become affected. But the parietes are rather slack, and we can feel distinctly the uterus through them, to be harder than usual, and it is very sensible. There is also pain felt in the back, which shoots to the groins; and there is usually a difficulty in voiding the urine, or a complete suppression, or distressing degree of strangury. The situation of the pain will vary according to the part of the uterus first and principally affected. The internal parts also become frequently of a deep red colour, and the vagina and uterus have their temperature increased. The lochial discharge is very early suppressed, and the secretion of milk diminished or destroyed. Nearly about the same time that the local symptoms appear, the system becomes affected. The patient shivers, has headache, often is sick, and vomits bilious or dark-coloured fluid. The pulse very early becomes frequent, and somewhat hard,

and the skin is felt to be hot. The tongue is white and dry, the urine high-coloured and turbid, and if the bladder be affected, it may be suppressed. The vomiting in some cases continues, and the bowels are at first bound, but afterwards the stools are passed more frequently. If the peritoneum come to partake extensively of the disease, then we have early swelling, and tenderness of the abdomen, and the danger is greatly increased.

If the inflammation do not extend along the peritoneum, this disease is more easily cured, than other visceral inflammations in the puerperal state. It may terminate favourably by a free perspiration, a diarrhœa, or a uterine hemorrhage ; which last is the most frequent and complete crisis. If the pain abates, the pulse come down, and the lochia and secretion of milk return, we consider the patient as having the prospect of a speedy cure. But in many other cases the disease is more obstinate, the fever continues, the pulse becomes more frequent, but is full for a day or two, after which, it becomes small, the tongue is redder, but dry, the pain does not abate, and in some days shiverings take place, and the pain becomes of the throbbing kind. The face is pale, unless when the cheeks have a hectic flush ; the urine, which was formerly high-coloured, now deposits a pink-coloured sediment, in great abundance. The nights are spent without sleep, and the patient is wet with perspiration. After some time, matter is discharged from the vagina, or by the bladder or rectum, but oftenest from the rectum. The hectic symptoms continue for many weeks, and may at last prove fatal. Sometimes the disease early proves fatal, the pulse increasing in frequency, the tongue becoming very red, and the strength sinking ; but even in this case, it will generally be found, that suppuration has taken place. Pus is contained often in the ovaria and tubes, and sinuses of the uterus. Mortification is an extremely rare termination. This is a fact, of which my dissections convince me, and it is farther confirmed by the opinion of Dr. Clarke. Little or no serous effusion takes place into the abdomen.

This disease calls for the early use of the lancet, which is

the principal remedy; and the quantity of blood which we take away, and the repetition of the evacuation, must depend on the constitution of the patient, the effects produced, and the period of the disease. If two or three days have passed over, the pulse may be full and frequent; but this is an indication that suppuration is going on, which will be ascertained by throbbing pain, &c. In this case the lancet is hurtful. Mild laxatives are also highly proper. Fomentations, sinapisms, and embrocations, are useful. Diaphoretics ought to be administered, such as the saline julap, with the addition of antimonial wine and laudanum. This is the best internal remedy I think we can employ. Emollient clysters, or sometimes anodyne clysters give relief. In the suppurative stage, we must keep the bowels open, give light nourishment, apply fomentations, and allay pain with anodynes. When the matter is discharged, a removal to the country will be useful, and tonic medicines should be given.

Sometimes the round ligament suffers chiefly, and the patient complains of pain and tenderness at the groin, increased by pressure. The lower part of the belly is, after a little, swelled and uneasy. Fever attends this disease, and sometimes the stomach becomes irritable. It is often caused by hasty extraction of the placenta. It requires the early use of laxatives; and if the symptoms are violent, it is proper to take blood from the arm, and apply leeches to the groin, which should seldom be omitted. Afterwards we can employ fomentations and blisters. If neglected, the disease may end in suppuration, or in a painful swelling, at the ring of the oblique muscle, which lasts a long time. This is sometimes removed by issues. Anodynes should be given, to allay irritation, and the strength must be supported under the fever, which resembles hectic.

## CHAP. XV.

*Of Peritoneal Inflammation.*

THE peritoneal lining of the abdomen, or the covering of the intestines, may be inflamed alone; or this disease may be combined with inflammation of the uterus.

Peritoneal inflammation may be caused by violence during delivery, or the application of cold, or the injudicious use of stimulants. It may not come on for three weeks after delivery, but it usually commences on the second day, and earlier than inflammation of the womb; and it may often be observed, that the pulse continues frequent from the time of delivery. It is preceded or attended by a shivering and sickness, or vomiting, and is marked by pain in the belly, which sometimes is very universal; though, in other cases, it is at first confined to one spot. The abdomen very soon becomes swelled and tense, and the tension rapidly increases. The pulse is frequent, small, and sharp, the skin hot, the tongue either clean, or white and dry, the patient thirsty; she vomits frequently, and the milk and lochia are obstructed. These symptoms often come on very acutely, but it ought to be deeply impressed on the mind of the student, that they may also approach insidiously. Wandering pain is felt in the belly, neither acute nor altogether constant. It passes for after-pains, but it is attended with frequency of pulse, and some fulness of the belly, and a little sickness. But whether the early symptoms come on rapidly or slowly, they soon increase, the belly becomes as large as before delivery, and is often so tender, that the weight of the bed-clothes can scarcely be endured; the patient also feels much pain when she turns. The respiration becomes difficult, and sometimes a cough comes on, which aggravates the distress; or it appears from the first attended with pain in the side as a prominent symptom. Sometimes the patient has a great inclination to belch, which always gives pain. The bowels are either constive, or the patient purges bilious or dark coloured fæces. These symptoms are more or less acute, according to the ex-

tent to which the peritoneum is affected. They are, at first, milder, and more protracted, in those cases where the inflammation begins in the uterus; and in such the pain is often not very great, nor very extensive, for some time. If the disease is to prove fatal, the swelling and tension of the belly increase, so that the abdomen becomes round and prominent, the vomiting continues, the pulse becomes very frequent and irregular, the fauces are aphthous, death is marked in the countenance, the extremities cold, and the pain usually ceases rather suddenly. The patient has unrefreshing slumber, and sometimes has delirium mite, but she may also remain sensible till the last. The disease usually proves fatal within five days, but may be protracted for eight or ten days, or even longer. If the patient is to recover, the swelling does not proceed to a great degree; the pain gradually abates, the vomiting ceases, the pulse becomes fuller and slower, the breathing easier, so that the patient can lie better down in bed, and she can turn more easily. Sometimes this disease ends in suppuration, and the abscess points and bursts externally. Dr. Gordon, in his treatise on puerperal fever, relates three cases of this kind. In one of these, the matter was discharged from the umbilicus, a month after the attack; in another, six weeks after delivery; and in the third, after two months it came from the urethra. Similar cases have come under my own observation.

Upon dissection, the peritoneum is found in a state of high inflammation, but it is rare to find it mortified. A considerable effusion of serous fluid, mixed with curdy substance, is found in the belly.

The patient is only to be saved by vigorous means, and great attention. If the pulse continue above a hundred in the minute, for twenty-four hours after delivery, there is reason to apprehend that some serious mischief is about to happen; and therefore, unless the frequency depend decidedly on debility, produced by great hemorrhage, &c. we ought to open the bowels freely, and give a diaphoretic. We must carefully examine the belly, and if it be full, or painful on pressure, or if the patient be inclined to vomit, we ought to

open a vein, and use purgatives. I know that many are unwilling to bleed women in the puerperal state, and the condition of the pulse may seem to young practitioners to forbid it. But in cases of peritoneal inflammation, not connected with typhoid fever, I must strongly urge the necessity of blood-letting, at a very early period; and the evacuation is to be repeated or not, according to its effects, and the constitution of the patient.\* If she have borne it ill, and is not relieved, when it is used first, I apprehend that the case has not been simple peritoneal inflammation, but puerperal fever. If she bear it well, and the pulse become slower and fuller, and the pain abate, we are encouraged to repeat it. I wish to impress on the mind of the student in the most earnest manner, the fatal consequence of neglecting blood-letting in this disease. How many women fall a sacrifice to the timidity or inattention of their attendant! The lancet is the anchor of hope: it may indeed be pushed too far; it may be used by young practitioners in cases of spasm, mistaken for peritonitis; but the error is safer than the contrary extreme, for of two evils debility is more easily removed, than inflammation. After the lancet has been freely used, if pain continue, leeches, or the scarificator may be applied to the most painful part. The bowels are at the very first to be opened freely with calomel, or some other purgative, which we require to give in a large dose, particularly calomel, for ordinary doses do no good. Dr. Armstrong gives half a drachm of calomel, and afterwards a purgative draught of senna and salts to work it off, and I think the practice safe. In an advanced stage of the disease, after effusion has taken place, we must employ purges alone, rather than blood-letting. Sinapisms and blisters are also proper. Digitalis has been given, either to abate inflammation, or promote absorption, after effusion has taken place; but I have not found it useful. After effusion has taken place, and

\* This is correct practice. Bleeding may be as safely employed in inflammation connected with the puerperal state, as under any other circumstances. C.

debility is produced, cordials, of which wine is the best, should be given, and anodyne clysters are to be administered.

Chronic, or slow inflammation of the peritoneum, is not very unfrequent, and may last for some weeks. It is attended with constant pain in some part of the abdomen, but it is not unbearable; the belly is tender, the pulse frequent, the thirst urgent, and often the mind is affected as in hysteria; or a train of hysterical symptoms supervenes, which may lead off the attention from the seat of the disease. It requires at first blood-letting, and then the frequent use of laxatives, with repeated blisters.

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## CHAP. XVI.

### *Of Puerperal Fever.*

PUERPERAL fever begins sometimes in an insidious manner, without that shivering which usually gives intimation of the approach of a serious malady. In other cases, the shivering is perceived, and varies considerably in degree, being either slight or pretty severe. The first symptoms, independent of the shivering, are frequency of pulse, oppression, nausea, or retching, pain in the head, particularly over the eye-brows. The night is passed with little sleep, much confusion, and occasionally some delirium. Even at this time, or very soon afterwards, pain is felt in the belly, at first slight, but it presently increases; and in some instances, the abdomen becomes so tender, that even the weight of the bed-clothes is productive of distress. A general fulness of the belly accompanies this from the first, and it usually increases pretty rapidly, and may proceed so far as to make the patient nearly as large as she was before delivery; and in such cases, the breathing becomes very much oppressed: indeed, in every instance, the respiration is more or less affected: the free action of the abdominal muscles, which are concern-

ed in that function, being productive of pain. The face is sometimes flushed at first, or the cheeks are suffused, but the countenance in general, is pale and ghastly, the eyes are without animation, and the lips and angles of the eyes are white. The whole features indicate anxiety and great debility. Vomiting occasionally occurs at the very commencement, and in that case it is bilious. In the course of the disease, it sometimes becomes so frequent, that nothing will stay in the stomach; and towards the conclusion of the fever, the fluid thrown up is dark-coloured, and frequently fœtid. This is a symptom, which, so far as I have observed, always, if it do not proceed from a morbid structure, indicates, in whatever disease it occurs, an entire loss of tone of that organ. But to proceed with the history. There is great dejection of mind, languor with general debility of the muscular fibres, and the patient lies chiefly on her back; or there is so much listlessness, that she sometimes makes little complaint. The skin is not very hot, but is rather clammy and relaxed. The tongue is pale or white at first, but presently becomes brown, and often aphthæ appear in the throat, or mucus is secreted, which excites a cough. The pulse, even at first, is very frequent, and is, at that period, fuller than in simple peritoneal inflammation, but it soon become feeble. The thirst is not always great, at least the patient is often careless about drink. The bowels are often at first bound; but afterwards, especially about the third day, they usually become loose, and the stools are dark, fœtid, and often frothy. This evacuation seems to give relief. The urine is dark-coloured, has a brown sediment, and is passed frequently, and with pain. The lochial discharge is diminished, and has a bad smell, or is changed in appearance, or gradually ceases; and it is observable, that the re-appearance of the lochia, if they had been suppressed, is not critical. The secretion of milk stops, and the patient inquires very seldom about the child. In some cases, I have met with pleuritic symptoms. As the disease advances, the pulse becomes more frequent and weaker, or tremulous. In bad cases, the swelling of the belly increases rapidly, but the pain does not always keep

pace with the swelling, being sometimes least, when the swelling is greatest, and in the end, it generally goes entirely off. The breathing becomes laborious, in proportion as the belly enlarges. The strength sinks, the throat and mouth become foul, the stools are passed involuntarily, low delirium sometimes takes place, and the patient usually dies about the fifth day of the disease, but in some cases not until the fourteenth ; in others so early as the second day.

This fever attacks generally on the second or sometimes on the third day after delivery, but it has also occurred so late as after a week. The earlier it attacks, the greater is the danger, and few women recover who have the belly much swelled.

On dissection, there is found in the abdomen, a considerable quantity of fluid, similar to that met with in peritonitis. The omentum and peritoneum are inflamed, but perhaps very slightly, and gangrene is unusual. The swelling is neither proportioned to the inflammation nor effusion, nor in every instance dependent on these, but on that inflation of the bowels which results from the relaxation of the muscular fibres of the bowels which is so common in the puerperal state, particularly in puerperal disease. The uterus is not more affected than the intestines. In some cases, the thoracic viscera are inflamed.

It is most frequent, and most fatal, in hospitals. In private practice it is less malignant, though still very dangerous. It is sometimes epidemic, but I do not know that it has ever appeared, as a prevailing epidemic, in this city,\* nor have I been able to trace the contagion from one woman to another. In hospitals, as well as in the private practice of individuals, in other places, it has appeared as a contagious disease. There has been much dispute whether the contagion was one *sui generis*, or that of typhus or erysipelas, or hospital gangrene ; or if the disease depended on some noxious state of the atmosphere, conjoined with the absorption of putrid matter. The disease appears to depend on in-

\* Glasgow.

inflammation of the peritoneum, conjoined with the operation of some debilitating poison, probably, in most cases, more or less contagious.

It is important to distinguish this disease from simple peritonitis, which may generally be done by attention. In puerperal fever, the abdominal pain is not the most prominent symptom. There is more despondency, debility, and headache; less heat of the skin, less thirst, and less flushing of the face. In the peritoneal inflammation, the pain in the belly usually increases rapidly after it begins, and the swelling increases along with it. Pressure gives very great pain. The fever is inflammatory. Inflammation of the uterus has its proper symptoms.

This disease is dangerous, in proportion to the malignancy of the cause, and the situation of the patient. All writers agree, that in hospitals it is peculiarly fatal, and that few recover from it. In private practice, the disease is milder, but still it is most formidable. With regard to the best mode of treatment, there has been a great difference of opinion, as will appear in the notes,<sup>1</sup> which partly depends on giving the name of puerperal fever to different disorders. I am sorry that I find it much easier to say, what remedies have failed, than what have done good. I have stated, that in peritoneal inflammation, blood-letting and laxatives are the principal remedies; but in this disease, blood-letting seldom does good, and often is hurtful. I am convinced, that if it is to be used at all, it must be very early, and that it ought not to be pushed far. If the symptoms of depression of strength, and the characters of puerperal fever, be very decided, we must not bleed; but if the debility be less obvious, if the pain and inflammatory symptoms be considerable, and the case has a mixed appearance, approaching to simple peritonitis, and we are called early, a vein must be opened; but if the pulse speedily become small, or the patient feel faintish, we must not continue the evacuation, and are upon no account to repeat it merely because the blood is buffy. Whether we bleed or not, it will be proper immediately to give a smart dose of some purgative medicine,

particularly calomel, succeeded by Epsom salts, afterwards we begin the use of the bark, giving it as liberally as the stomach will bear, or administering it in the form of a clyster. Opiates, given after purgatives, have the effect of abating irritation and pain, and of restraining immoderate diarrhœa, should that come on. Diarrhœa should not be allowed to continue long, and is always to be restrained, unless it evidently give relief, and the fæces be very fœtid. In this case, calomel and diluents should be employed. If there be tenesmus, anodyne clysters should be given, after the use of the calomel. In all cases, we are to attend much to the bowels, using brisk purgatives and clysters, where there is no diarrhœa; milder doses administered with opiate clysters, where there is. Vomiting is to be restrained by solid opium, and by an opium plaster applied to the region of the stomach: sometimes saline draughts are of service. Nausea has been supposed to indicate the necessity of an emetic; but if no relief be obtained from natural vomiting, which most practitioners admit, I do not see that artificial vomiting can be useful, nor does experience support the practice. Fomentations, and anodyne or rubefacient embrocations, sometimes abate the pain in the abdomen. The repeated application of blisters has been extolled by some, but I am much inclined to concur with Dr. Clarke, in thinking, that they rather excite an injurious irritation. The strength should be supported by light nourishment, and a moderate proportion of wine, or other cordials. Digitalis and other diuretics have been given, to carry off the effused fluid, but they have no effect. Emetics and antimonials, I am afraid, do more harm in general than good. Upon the whole, we trust chiefly to tonics, in the cure of puerperal fever; we support the strength, and regulate the state of the alvine discharge, preventing accumulation of morbid fæces on the one hand, and restraining immoderate evacuation on the other.\* Most authors have laid

\* On no subject, perhaps, are practitioners more divided than respecting the treatment of puerperal fever. From different views of the nature of the disease, two modes of practice have indeed been deduced almost diametrically opposite. Whatever may be the propriety of the plan, recommended by

down distinct and formal indications to be fulfilled ; but it is much to be doubted, if the means proposed be adequate to the effect intended to be produced ; or if all the parade of science has done more than show, that, with the addition of remedies for removing particular symptoms, one class of practitioners have trusted to the lancet as the chief engine of cure, and another to the use of bark and cordials. Peritonitis is much more frequent than puerperal fever.(y)

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## CHAP. XVII.

### *Of Swelled Leg.*

THE swelling of the inferior extremity, in puerperal women, is usually preceded by marks of uterine irritation, and a tender state of the parts within the pelvis. About a fortnight after delivery, sometimes a little earlier, or even so late as the fifth week, the patient complains of pain in the lower belly, increased by pressure, and occasionally has pain and difficulty in making water. The uterine region is somewhat swelled. The pulse is frequent, the skin hot, the thirst increased, and these symptoms are often preceded by shivering. Stiffness

Mr. Burns, applicable to puerperal fever in Europe, it would, undoubtedly, be mischievous, if adopted here.

The disease in this country is very generally a fever of increased action, and requires for its cure pretty copious depletion. Bleeding freely, purging actively with the neutral salts, and blisters to the region of the abdomen, are the remedies which have succeeded best in my hands. C.

(y) It is most probable that the low form of fever here described, under the name of puerperal fever, is comparatively a rare disease in the United States of America, even in our large towns, but more especially so in situations in the country; and that what has by some been considered as that disease, and in which depletion has been found so useful, has been a species of peritonitis. Of this the Editor thinks he has known more than one instance. On the subject of fevers attacking puerperal women, he would particularly recommend to the student, the attentive perusal of the excellent essays of Dr. John Clarke, on the Inflammatory and Febrile diseases of lying-in women. Also, the valuable writings of Gordon of Aberdeen; Hey of Leeds, and Armstrong of Sunderland, on the puerperal fever which prevailed as an epidemic in those places.

and pain are now felt in one of the groins, near the passage of the round ligament, or the exit of the tendon of the psoas muscle, or in some cases about the origin of the sartorius and rectus muscles. The pain is attended with swelling, and these two symptoms may proceed gradually down the limb; but more frequently, pain is felt suddenly in the calf of the leg, or at the knee, near the insertion of the sartorius muscle, and is most acute in the course of that muscle; it also darts down to the heel. Within twenty-four hours after the pain is felt the limb swells, and becomes tense; it is hot but not red; it is rather pale and somewhat shining. The swelling sometimes proceeds from the groin downwards; in other cases, it is first perceptible about the calf of the leg, and proceeds upwards. It generally procures an abatement of the pain, but does not remove it. On the contrary, the patient cannot move the leg, and it is tender to the touch. The inability to move it, however, does not depend altogether on the pain, but also on a want of command over the muscles. The pulse is very frequent, being often 140 in the minute, and generally is small and feeble, but sharp; the tongue is white and moist, the countenance has a pale chlorotic appearance, the thirst is considerable, the appetite is lost; the bowels are either bound, and the stools clay-coloured, or they are loose, and the stools very foetid or bilious. The urine is muddy; the lochial discharge sometimes stops, or becomes foetid, in other cases it is not at all affected. The nights are spent without sleep, and the patient perspires profusely. All the parts within the pelvis are tender, and the os uteri is open, but not more painful when touched, than the sides of the vagina or the internal muscles.

The period at which the swelling reaches the acmé is various, but often it is accomplished in twenty-four or forty-eight hours. It seldom makes the limb above double its usual size. Generally in ten days, sometimes in even two or three, the febrile symptoms, swelling, &c. abate; but it may happen that they are protracted longer, and they do not go off entirely for some time. When they go off, the patient is left feeble, and the limb stiff, weak, and often for a time

powerless. In the course of the cure, we frequently feel hard bumps in different parts of the limb, especially on its back and inside. These are not glands; some consider them as indurated lymph, others as muscular contractions. At the top of the thigh, the inguinal glands are often felt swelled, even at the beginning of the complaint; but in some cases, I have found them not at all affected.

If the skin be punctured, no serum is effused, at least not in the same way as in anasarca, and the swelling is not increased in a depending posture.

In some cases, the disease begins like rheumatism affecting the back and hip joint.(z) Then the upper part of the thigh becomes painful and swelled, and next the calf of the leg suffers; sometimes the limb at first feels colder than the other. Occasionally the disease is very mild, and attended with little swelling. This is more apt to be the case when it is late of occurring, and is vigorously attacked at first.

In one or two instances, suppuration has taken place: mortification has also happened.

If the disease run its usual course, it is always a length of time before the patient recover, for the swelling does not go soon entirely away, and the strength is long of returning. In some instances, the limb remains permanently swelled and feeble.

After one leg has been affected, and even before the complaint has completed its course there, the other may become diseased; and this has no influence on the progress of the first. The second attack is sometimes the worst of the two, owing, perhaps, to the previous debility. A coldness is often felt in the second leg, before the paroxysm comes on, and pain in the belly precedes the attack. The first leg may be a second time attacked.

(z) It is an opinion entertained by some respectable and experienced practitioners, that this disease is in fact, a variety of rheumatism, and is to be managed on the general plan of treatment that is found to be successful in rheumatic fever. After the inflammatory stage is over, it is by them considered as running into the chronic state of rheumatism, and to be treated accordingly by the remedies appropriated to that form of disease.

This is not generally a fatal disease, but it is tedious, and is often accompanied with hectic symptoms. Death, however, may be caused by suppuration or gangrene; or by exhaustion, proceeding from the violence of the constitutional disease; or from exertion made by the patient, which has sometimes proved suddenly fatal.

The production of this disease does not seem to depend on the circumstances of the labour, for it appears both after easy and difficult deliveries. Those who give suck, and those who do not, the strong and the weak, are affected by it. But if it be late of occurring it is generally in those who have suffered from mammary abscess. It has succeeded an abortion, or suppression of urine. I am inclined to consider the cause to be an irritated or slightly inflamed state of the parts within the pelvis, which sometimes produces merely a stiffness and swelling at the passage of the round ligament, sometimes an irritation of the nerves which pass to the leg. Puzos and Levret consider the disease as proceeding from a depot of the milk. Most modern writers attribute it to an affection of the lymphatics, which are ruptured, or have their circulation interrupted by swelling of the inguinal glands. Dr. Hull considers the disease as an inflammatory affection, suddenly succeeded by effusion. I refer, for a view of the different opinions, to his *Treatise on Phlegmatia Dolens*. The disease seems to consist partly in inflammation, and partly in nervous irritation, producing both pain and a temporary species of palsy; and the cure consists in lessening the one, and allaying the other.

The treatment naturally divides itself into that of the limb, and that of the constitution.

Our first object is to check the disease within the pelvis. For this purpose, leeches ought to be applied to the groin, and we should immediately open the bowels with a purgative. A small blister should then be applied to the groin, or sinapisms may be applied to the groin, inside of the thigh, and near the knee on the leg, and afterwards cloths, wet with tepid solution of acetate of lead, or with warm vinegar.(a)

(a) It is the practice at one of the best regulated lying-in hospitals in London, to apply flannel, well soaked in hot vinegar, to the groin of the af-

These means may prevent the swelling, or render it milder. If the disease have already taken place in the limb, fomentations, and gentle friction, with anodyne balsam, or camphorated oil, will be useful, and should be frequently repeated. The bowels should still be kept regular, but the patient is not to be purged. Opiates are useful, to allay irritation. When the acute symptoms are over, we endeavour to remove the swelling, and restore the tone of the part, by friction with camphorated spirits, and the use of the flesh brush, and a roller applied round the limb. The liberal use of solution of cream of tartar is also, in many cases, of service. If the disease threaten to be lingering, small blisters may be applied to the groin. If much weakness of the limb remain, the cold bath is proper, or sometimes a bath of warm seawater.

Besides these means, we must also employ remedies for abating the fever, and constitutional affection. At first we use saline draughts, but these are not to be often repeated, and must not be given so as to procure much perspiration. In a short time they should be exchanged for bark, sulphuric acid, and opiates, which tend to diminish the irritability. In the last stage, we give a moderate quantity of wine. When the pain shifts like rheumatism, bark, and small doses of calomel, are useful. If the uterine discharge be fœtid, it is proper to inject tepid water, or infusion of chamomile flowers

affected limb, as well as to the limb itself; and it is asserted, that no other remedies beyond those necessary to keep the bowels open, are ever used. [Vide Vol. V. of Lond. Med. and Phys. Journal.] The editor can, from experience, add his testimony in favour of the beneficial effects of this treatment.

Dr. John Clarke, recommends laying the whole leg affected, in a soft poultice, made as follows: To a peck of well dried bran, he adds an ounce of hot olive oil, and a pint of strong soap lees; these being well mixed together, says the Doctor, form a poultice, which in these cases may be used with the greatest advantage; it has the good effect of keeping up a gentle perspiration, and forms the softest pillow which can be imagined, never failing to bring relief.

Dr. Hosack of New York, in this disease, strongly recommends the exhibition of a combination of squills and calomel, which he thinks has often produced the best effects.

into the vagina. Exposure to cold, during the first stage of recovery, may cause a relapse. The treatment thus consists chiefly in palliating symptoms, and supporting the strength. I cannot, however, agree with those who, in the very outset of the disease, give wine liberally, as there certainly does, at that time, exist an inflammatory tendency. The diet should be light and nutritious.\*

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## CHAP. XVIII.

### *Of Paralysis.*

SOME women after delivery, lose for a time the power of the inferior extremities, although they may have had a very easy labour. This paralysis may exist in different degrees, and in some cases the muscles are painful. Sometimes it is attended with retention of urine. It is not accompanied with any cephalic symptoms. In general, the disease wears off in a few weeks. Friction, the shower-bath, tonics, and gentle exercise on crutches, are the means of cure. The bowels are also to be kept open.

After a severe or instrumental delivery, the woman may complain of excessive pain about the loins and back, attended with lameness, or even palsy. This is sometimes a very tedious complaint, but usually it is at last removed. The tepid bath, with anodyne embrocations, relieve the pain; and at a more advanced period, sea-bathing is proper.†

\* I have met with but two cases of this strange affection, which I treated, very successfully, by copious bleeding, by very active purging, and by blisters applied to the groin, and extending up the abdomen. In these cases there was every appearance of high inflammatory action, accompanied with much pain. If the preceding remedies should fail, and the disease run on obstinately to the second stage, I would recommend large doses of opium to allay the pain, and calomel in the ordinary quantity, with a view of exciting salivation. C.

† Active purging is very useful in this disease. I have also known much good to be derived from blisters to the sacrum. C.

Hemiplegia may attack women in the puerperal state, as well as at other times. It proceeds from the same cause, and requires the same treatment, as usual. If death takes place, blood is found extravasated in the brain.

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## CHAP. XIX.

### *Of Puerperal Mania and Phrenitis.*

ALL women, in the puerperal state, are more irritable, and more easily affected, both in body and mind, than at other times, and some even become delirious. The period at which this mental disease appears is various, but it is seldom if ever sooner than the third day, often not for a fortnight, and in some cases not for several weeks after delivery. It usually appears rather suddenly; the patient awakening, perhaps, terrified from a slumber, or it seems to be excited by some casual alarm. She is sometimes extremely voluble, talking incessantly, and generally about one object, supposing, for example, that her child is killed, or stolen; or, although naturally of a religious disposition, she may utter volleys of oaths, with great rapidity. In other cases, she is less talkative, but is anxious to rise and go abroad. It is not, indeed, possible to describe the different varieties of incoherence, but there is oftener a tendency to raving than melancholy. She always recognises surrounding objects, and either answers any question put to her, or becomes more exasperated by it. She can by dint of perseverance, or by proper management, be for a time interrupted in her madness, or rendered in some degree obedient. In some instances, she reasons for a little, pretty correctly on her insane idea. The eye has a troubled appearance, the pulse, when there is much nervous irritation, or bodily exertion, is frequent, but it is not in general permanently so, though it is liable to accelerations; the skin is sometimes rather hot, the tongue white; the secretion of milk is often, but not always, diminished, and the bowels are usually costive. In some instances the

patient recovers in a few hours, in others the mania remains for several weeks, or even some months; but I believe it never becomes permanent, nor does it prove fatal, unless dependent on phrenitis. Venesection has been advised in this disease; but I agree with those who consider it as hurtful, or at least as useless. The best practice, I think, is to apply leeches to the temples, open the bowels, with a smart dose of calomel, keep the surface gently moist, by means of saline julap, and afterwards allay irritation with liberal doses of camphor. Blisters have by some, for whose opinion I have much regard, been considered as useless, or detrimental; but I am confident I have seen them do good, after they had discharged freely. Opium is a very doubtful remedy; it oftener makes the patient restless, than procures sleep; but in the wane of the disease, it does, in some cases agree with the patient, and is productive of great benefit. There is sometimes considerable difficulty in keeping the patient in bed, and making her take either food or medicine. It is therefore of great advantage to have early recourse to the strait waistcoat, which not only commands the patient, but tends to make her exercise self-control. In the progress of the disease, attention must be paid to the bowels, and it must be remembered, that often the patient voids both urine and fæces without telling, not from being unable to retain them, but from inattention or perversity. The mind is not at first the subject of management, but in the progress of the complaint, it may by prudent efforts be aided in convalescence, by cheerful conversation, light reading, music, and afterwards by daily walking and change of scene.\*

\* In the management of this disease, we are to observe the same rules as are applicable to mania generally. It would seem, however, to be more frequently attended with extreme nervous irritation, than inflammatory action. In the former state, I have seen the most manifest advantage from large and repeated doses of the tincture of hops, where opium only aggravated the symptoms. In the latter state, we should bleed and purge as long as there is increased excitement. Blisters to the head, and to the extremities, in either state will be beneficial. They will alike allay nervous irritation, or subdue inflammatory action, and thus produce calmness and ease. They are often, especially in mania, if applied in the proper condition of the system,

Some are peculiarly liable to this disease after delivery, in consequence of the irritable state of the nervous system at that time. In such cases, the patient must be carefully watched after parturition. Every irritation must be removed, every source of alarm or agitation obviated, and the camphorated julap with gentle laxatives will be proper remedies, these being the most powerful means of diminishing the excessive irritability of the nervous system. The diet is also to be regulated. If the patient do not sleep well, hyoscyamus should be given. It is often of service to get the patient up as soon as can be done with safety, and have the mind occupied with such amusements and pursuits as keep it equally exercised, without risking any irritation.

Melancholy usually comes on later than furious delirium. The disease differs nothing in appearance and symptoms from melancholy madness occurring at other times. It is obstinate, but generally goes off after the child is weaned, and the strength returns. It is therefore proper to remove the child, and send the patient to the country as soon as possible. In some instances, both kinds of madness seem to be dependent on a morbid irritation, such as inflammation of the mamma, &c. Here our attention must be directed to the cause.

Inflammation of the brain usually appears still earlier than delirium, from irritation. It may be caused by determination of blood to the head, or preternatural irritability of the sensorium, or may occur in consequence of a constitutional tendency to mania. It must be distinguished from puerperal delirium which is seldom dangerous, whilst this is a most fatal disease. It generally appears within the third day after parturition, but it may also take place later. The pulse usually continues frequent from the time of delivery. The patient does not sleep soundly, and indeed is watchful. She soon complains of throbbing within the head, or in the throat, or ears; then of confusion, hears acutely, dislikes the light, and speaks in a hurried manner, and often is unusually in-

which is after the excitement is a little reduced by previous blood-letting, the best of our anodynes. C.

terested about some trifle. Then all at once furious delirium comes on. She talks rapidly and vociferously, the eyes move rapidly, are wild and sparkling, and very sensible to the light. This state may continue, with little interruption, till symptoms of compression appear, or there may be a short interval of reason, but presently the furor returns, and alternates perhaps with sullenness. The case is in these respects modified according to the inflammation; for sometimes it comes on rapidly and to a great extent, at other times it proceeds more slowly. The lochia are not suppressed, nor are the bowels bound, but the secretion of milk ceases. In three or four days, she becomes paralytic in one side, and then sinks into a low comatose state; the extremities become cold, the breathing laborious, and sometimes convulsions precede death. This disease requires the prompt and early use of the antiphlogistic treatment, general and local blood-letting, the use of purgatives, and the application of a blister to the scalp. The inflammatory symptoms being subdued, the delirium abates, or goes off, by the use of remedies formerly pointed out.

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## CHAP. XX.

### *Of Bronchocele.*

SWELLING of the thyroid gland takes place, so much more frequently after parturition, than under other circumstances, that it may with propriety be noticed here. It appears within a few days after delivery, and is often attributed to exposure to cold. In other cases, the woman feels during labour, as if something had given way about the throat. It may remain long in an indolent and stationary state, being productive either of no material inconvenience, or only of a slight difficulty of swallowing. In other instances, it augments in size, and becomes dangerous from its pressure on the neighbouring parts; or it inflames, forms a large abscess, and

bursts. Enlargement of the left lobe is more dangerous than that of the right.\*

Various remedies have been employed, such as burnt sponge, calomel, muriate of lime, &c. but these have seldom much effect. Repeated blisters, and long continued friction, are more useful. If the tumour threaten to enlarge, which it often does, after every succeeding pregnancy, or even independent of gestation, it has been proposed to extirpate the tumour, or to tie the arteries going to it. If there be a tendency to suppuration, it ought to be encouraged, and treated on general principles.

\* There is an intimate connexion between the thyroid gland and the brain. It is well known, that, very generally, one of the most remarkable symptoms of bronchocele is a gradual, though certain, decay of the intellectual faculties. This is strikingly exemplified in the Cretans of the Alps. The goitre, with this miserable race of people, is commonly, if not always, attended with idiotism. In the lower animals, if the gland be removed, a train of nervous affections will speedily follow, and finally fatuity, or a total extinction of mind. This has been proved by a series of experiments made, as I have understood, by the celebrated Mr. Cooper of London. As soon as I heard of these facts, it occurred to me as being not at all improbable, that one of the hitherto unknown uses of this organ, might be to stay the circulation in cases of undue determination of blood to the head. I was assisted to this inference by the recollection of having seen it somewhere remarked, that in the cases alluded to, the gland is uniformly swelled more or less with blood. If, as it now seems to be admitted, that the brain requires a certain proportion of blood for the regular performance of its functions, and that these will be equally impaired by any excess or deficiency of it, we can have no difficulty in conceiving how the brain becomes affected, either by an enlargement or total extirpation of the gland.

With respect to the production of *puerperal bronchocele* we have an obvious explanation. During parturition, and particularly if it be laborious, there is very frequently an afflux of blood to the head, and, as may be observed, a considerable distension of the thyroid gland. By this distension, which occasionally is so great, as to induce the woman to believe, "*that something has given way about her throat,*" the gland is relaxed; it receives thereby a larger quantity of blood, which necessarily nourishes a morbid growth of the part. C.

## CHAP. XXI.

*Of Diarrhœa.*

IF the patient have been costive before delivery, large masses of fæces may come down afterwards, producing violent pains in the belly, piles, tenesmus, or uterine hemorrhage; or the same cause may excite diarrhœa with the passage of scybalæ. Both states require the use of gentle laxatives. Diarrhœa may also occur without previous costiveness; the stools are then fœtid or bilious. In this case the diet is to be strictly regulated; gentle laxatives are to be first given to evacuate the offensive matter, and then opiates are to be immediately resorted to. If neglected, great weakness, uterine hemorrhage, or other serious consequences may be produced. When it is accompanied with bilious vomiting, and cramps or spasms, opiates are the principal remedy, and these must, if vomited, be given in the form of clysters.

## CHAP. XXII.

*Of Inflammation of the Mamma, and Excoriation of the Nipples.*

INFLAMMATION of the mamma may take place at any period of nursing, but is most readily excited within a month after delivery. It may be excited by the direct application of cold, retention of the milk in consequence of sore nipples, mechanical injury, or it may occur in that febrile state, called weed. In general, the inflammation, however extensive it may afterwards become, is at first confined to a small spot. It may take place in the cellular substance alone, or it may affect the gland; it may be attended with much general swelling of the breast, or the tumour may be very circumscribed; it may run its course rapidly, or very slowly; and when abscess forms, and the integuments burst we may have mat-

ter alone discharged, or there may be a slough of considerable magnitude found within the abscess. This proceeds from the destruction of one or more of the glands, which, if the inflammation run high, do not suppurate, but die. Usually, there is a considerable degree of fever attending the complaint, and the pain is often severe, especially when the breast is extensively affected. It is a very difficult thing to prevent this inflammation from ending in suppuration. It is to be attempted, however, by purgatives, and the application of cloths wet with pretty strong solution of acetate of lead,\* which, however, ought not to be cold, as that might excite shivering; or we apply a tepid saturnine poultice. If there be only a little diffused fulness with some degree of pain, gentle friction with warm oil is useful. If the breast be distended with milk, it will be proper to have a little taken away occasionally, provided this can be done easily, and without increasing the pain. Our object in doing so, is to diminish the tension, and prevent farther irritation from accumulation in the vessels. The breast is also to be carefully supported, and indeed the patient will be easiest in bed. When the pain becomes throbbing, a warm bread and milk poultice is proper to assist the suppurating process. After matter is formed, it ought to be freely let out, by an opening of sufficient size, provided there be no appearance of the abscess bursting soon of its own accord. This prevents insinuation of matter in the cellular substance of the breast. If the puncture be followed by a troublesome oozing of blood from the wound, dry lint and compression must be used. In one instance, I knew the hemorrhage prove fatal. After the abscess bursts, or is opened, there is for some time a discharge of purulent matter, which frequently is mixed with milk; then the surrounding hardness gradually abates. The poultice may be continued for several days, as it promotes the absorption of the indurated substance; but if it fret the surface, and encourage a kind of phagedenic erosion, it is to be exchanged

\* I know of nothing so good in these cases, as bathing the breast with a mixture of laudanum, brandy, and hartshorn. C.

for mild dressings. A little fine lint is to be applied on the aperture, but not so firmly as to confine the matter ; and over this, a cloth spread with spermaceti ointment ; great attention is to be paid to the evacuation of the matter, and the prevention of sinuses.

In some instances the milk soon returns, and the patient can nurse with the breast which was affected, but more frequently it does not, and the child is brought up on one breast. It may even be requisite, if the fever and pain be great, and the secretion of milk much injured, to take off the child altogether.

If the management be negligent, or the constitution bad, it sometimes happens, that extensive suppuration, or numerous abscesses take place. The breast becomes altogether considerably diseased, and the discharge is very fœtid. In such cases, hectic fever, and great debility are induced. It is in general proper to remove the patient to the country, and give bark or tonics internally, with nourishing diet and wine. Sinuses must be laid open from the bottom, or counter-openings must be made, and the sores dressed according to the general rules of surgery. Even although there be not much ulceration or any appearance of scrophulous induration, the strength may, from an extensive abscess, or protracted sore, be much diminished, and hectic induced, which is to be removed by the means commonly employed, or already pointed out.

Sometimes, although the abscess heal readily, and have been small, an induration remains, which either may continue long indolent, and cause apprehension respecting future consequences, or it may occasion a relapse. It is to be removed by gentle friction with camphorated spirits three times a-day, and the application, in the interval, of cloths wet with camphorated spirits of wine, with the addition of a tenth part of acetum lythargyri. In more obstinate cases, mercurial friction, or a gentle course of mercury may be tried, but I cannot speak with any confidence of the effect. The bowels should always be kept open.

After an abscess heals, it is not uncommon for the breast to swell a little at night from weakness, and the same cause

renders a relapse easy. It is therefore proper to invigorate the system, and defend the breast for some weeks more carefully than usual from cold. When a relapse takes place, especially if the patient be not nursing, the tumour is sometimes pretty deep or indolent, is for a long time hard to the feel, and gradually extends more through the breast, forming a pretty large substance, not unlike a scirrhus or scrophulous gland. But during this time, suppuration is slowly going on, though there may be little pain. At last a more active change takes place, the pain increases, becomes throbbing, the skin red, and, finally, the abscess bursts. This state requires the application of warm poultices and hot fomentations.

Excoriation of the nipple is a very frequent affection, and often excites that disease we have just been considering. The ulcer may be extensive, but superficial; or it may be more circumscribed, but so deep as almost to divide the nipple. When the child sucks, the pain is severe, and sometimes a considerable quantity of blood flows from the part. In some instances, an aphthous state of the child's mouth excites this affection; in others, excoriation of the nipple affects the child. A variety of remedies have been employed. Spirituous, saline, and astringent lotions have been used previous to delivery, with a view of rendering the parts more insensible; they have not always that effect, but they ought to be tried.<sup>(b)</sup> When excoriation takes place, fifteen grains of sulphate of zinc, dissolved in four ounces of rose water, form a very useful wash, which should be applied frequently. Solutions of sulphate of alumine, acetate of lead, sulphate of copper, nitrate of silver, &c. in such strength as just to smart

(b) In one instance which has been related to me by a respectable physician of this city, the suction of the nipple by a young puppy for about one month preceding parturition, had the most complete success in preventing the excessive soreness and suffering to which the lady had been subjected, in consequence of her previous labours. This, though to some it may perhaps appear an unpleasant preventive, yet is certainly worthy of the attention of those who have often experienced the extreme anguish arising from this variety of disease.

a little, are also occasionally of service; and it is observable, that no application continues long to do good. Frequent changes, therefore, are necessary. The nipple should always be bathed with milk and water, before applying the child. When chops take place, dressing the part with lint, spread with spermaceti ointment, is sometimes of use. A combination of white wax, with fresh butter or melted marrow, with or without vegetable additions, form popular applications. Stimulating ointments, such as ung. hyd. nit. diluted with axunge, are sometimes of service; or the parts may be touched with burnt alum.<sup>(c)</sup>

It is often useful to apply a tin case over the nipple, to defend it, or a chalk cup, which absorbs the discharge, or broad rings of lead or ivory. It is also proper to make the child suck through a teat fixed on a metallic nipple, that the irritation of its tongue or mouth may be avoided. This often is of great service, but it does not always succeed; and some children cannot suck through it. The assistance of a nurse to suckle the child through the night is useful. But although the nipples ought to be saved as much as possible, yet if we keep the child too long off, or permit the breast to become much distended, inflammation is apt to take place. When all these means fail, it is necessary to take off the child, as a perseverance in nursing exhausts the strength, and may excite fever. The part then heals rapidly.

Venereal ulceration of the nipple or areola, accompanied with swelled glands in the axilla, and a diseased state of the child's mouth, require a course of mercury.

It may be proper, before concluding this chapter, to add some remarks on causes disqualifying a woman from nursing. If the nipple be very flat, and cannot by suction be drawn out, so that the child can get hold of it, the woman cannot nurse. A glass pipe, however, frequently used, sometimes remedies this defect. A deficiency of retentive power, so that the milk

(c) Richter recommends touching the ulceration of the nipple with the lunar caustic, and Dr. Hartshorne informs me he has tried this with success in several cases, where every other application had failed giving relief. The caustic should be applied once every two days.

runs constantly out, is another disqualification, and it is not easy to find a remedy. When the milk disagrees with the child, having some bad quality, we are also under the necessity of employing another nurse. If the mother be very delicate, or be consumptive, or affected with obstinate melancholy, or have her eyes much inflamed, or the sight injured by nursing, or if the secretion be very sparing, she must give up nursing. Some delicate women suffer so much from nursing, that chlorotic, or phthisical symptoms are induced. In this case, she must take off the child. Opiates are useful at bed time, to procure sleep, and the bowels are to be kept open. Many women, after delivery, are subject to disorders of the alimentary canal, especially diarrhœa and worms. These impair the health, and diminish the secretion of milk. They are to be treated with the usual remedies. Anasarca, jaundice, erysipelas, &c. may also occur in the puerperal state, and prevent nursing. The ordinary methods of cure are to be employed.

When a woman weans a child, or from the first does not suckle it, it is usual to give one or two doses of some purgative salt, by way of lessening the secretion of milk. The secretion is also checked by keeping off the child; but if the breasts be very much distended, so much must be taken away occasionally, by suction, or milking the breast, or applying a warm glass bell, as relieves the feeling of tension or pain. If this be neglected, inflammation may be excited.

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## CHAP. XXIII.

### *Of Tympanites.*

IN consequence of affection of the menstrual action, or after confinement, especially if the patient be exposed to cold, the bowels become inflated, and the belly is slowly distended, without pain. This may also happen during nursing, or towards the cessation of the menses, giving rise in either case to an idea that the woman is pregnant. This complaint is not

productive of bad health, but occasionally it causes acidity, and other dyspeptic symptoms, and it is moreover very unseemly. The enlargement is always increased about the menstrual period, if menstruation continue. It arises from a relaxation of the muscular fibres of the intestines, and may not only appear as a peculiar disease itself, but also accompany many puerperal affections, particularly of the febrile kind, although there be no inflammation of the bowels.

It is best prevented by keeping the bowels in a regular and active state, paying attention to the application of an abdominal binder after confinement, and avoiding exposure to cold, and other exciting causes of disease.

After it has taken place, it is exceedingly difficult to accomplish a cure. Brisk purgatives, the regular use of aperients, so as to excite a uniform, but not powerful action, carminatives, squills, turpentine, mercury, Harrowgate waters, stimulating embrocations, regular compression, tonics, and sea bathing, have all been tried, but upon none of them can I place any great reliance.

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## CHAP. XXIV.

*Of the signs that a woman has been recently delivered.*

WE discover that a woman has been recently delivered, by finding that the external parts are relaxed, and redder, or of a darker colour than usual. There is a sanguineous or lochial discharge. The uterus is enlarged, and has neither the shape of the gravid nor unimpregnated uterus; the cervix is indistinct, and the os uteri is nearly circular, and will admit two or more fingers. The abdomen is prominent, and the integuments relaxed, wrinkled, and covered with light-coloured broken streaks. The breasts are enlarged, have the areola very distinct, and contain milk; but it is possible for this secretion to take place independently of pregnancy.

By examination per vaginam, within a fortnight or three weeks after delivery, the uterus may still be felt larger than

usual, its lips softer, and capable of admitting the point of the finger without much difficulty. The milk at this period will not have left the breasts, which are firm, and have a dark areola round the nipple. A question here occurs. May not all these appearances take place merely from hydatids? I reply, that hydatids certainly may produce the same effects with gestation, because they do very frequently spring from conception. It is, however, very rare for the belly to be enlarged to the same degree as in the end of pregnancy, and when the mass is expelled, as it is soft, the perineum cannot be injured. If then it can in a criminal case be proved, that the woman had the belly greatly enlarged, and if afterwards she is found with the breasts containing milk, the uterus large, and its mouth soft and open, and part of the perineum torn, or the fourchette torn, there can be little doubt that she has borne a child. Other circumstances may also concur in confirming the opinion of the practitioner; as, for instance, if the patient give an absurd account of the way in which her bulk suddenly left her, ascribing it to a perspiration, which never in a single night can carry off the great size of the abdomen in the end of a supposed pregnancy.

Very contradictory accounts have been given by anatomists, of the appearance and size of the uterus, when inspected at different periods, after delivery. If the woman die of hemorrhage, or from any cause destroying her, soon after delivery, the uterus is found like a large flattened pouch, from nine to twelve inches long. The cavity contains coagula or a bloody fluid, and its surface is covered with remains of the decidua. Often the marks of the attachment of the placenta are very visible. This part is of a dark colour, so that the uterus is thought to be gangrenous, by those who are not aware of the circumstance. The surface being cleaned, the sound substance of the womb is seen. The vessels are extremely large and numerous. The fallopian tubes, round ligaments, and surface of the ovaria, are so vascular, that they have a purple colour. The spot where the ovum escaped, is more vascular than the rest of the ovarian surface. This state of the uterine appendages continues until the womb has returned to its unimpregnated state.

A week after delivery, the womb is as large as two fists. At the end of a fortnight, it will be found about six inches long, generally lying obliquely to one side. The inner surface is still bloody, and covered partially with a pulpy substance, like decidua. The muscularity is distinct, and the orbicular direction of the fibres round the orifice of the tubes very evident. The substance is whitish. The intestines have not yet assumed the same order as usual, but the distended cæcum is often more prominent than the rest.

It is a month at least, before the uterus returns to its unimpregnated state, but the os uteri rarely, if ever, closes to the same degree as in the virgin state.

We know that the woman has had a recent miscarriage, by the state of the breasts, the sanguineous discharge from the vagina, the size of the uterus, and the softness and dilatation of its mouth. If the woman die, the womb is found enlarged, its inner surface covered with the decidua, or maternal portion of the placenta. The vessels are enlarged, the tubes and ligaments very vascular; the calyx of the ovum is bloody. This at a more advanced period, forms a kind of cicatrix, or a dusky yellowish body, called corpus luteum. This mark may exist, although the woman have not borne a child, for the ovum may be blighted, perhaps even in the ovarium. It has been conjectured by some, that it may be produced even without sexual intercourse, but this point I cannot determine. I apprehend, however, that in such cases, the marks are not real corpora lutea; they have not ever been injected.

These appearance during life, or after death, which occur from a miscarriage, may also arise from the expulsion of hydatids, which usually are produced by the destruction of an ovum, in which case, even a distinct corpus luteum may be discovered.

## BOOK IV.

### OF THE MANAGEMENT AND DISEASES OF CHILDREN.

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#### CHAP. I.

##### *Of the Management of Children.*

#### § 1. OF THE SEPARATION OF THE CHILD AND THE TREATMENT OF STILL-BORN CHILDREN.

WHEN a child is born, the first thing to be done is to ascertain if it breathe or be alive. If it cry or breathe vigorously, then it may be safely separated from the mother.\* This is done, by tying the navel-string about half an inch from the navel; (d) another ligature is applied an inch nearer the placenta, and the cord is divided between these with a pair of scissors. In some countries, the division is made with a sharp flint, in others, by means of fire. The necessity of applying a ligature has been denied by different practitioners;

\* Dr. Denman, from observing that some children, after they had begun to breathe, had respiration checked, and died after the cord was tied, advises, that the ligature should never be applied till the pulsation cease. But when the child is vigorous and cries lustily, there is no occasion for delaying so long; nor have I ever known any bad effect result from this practice. It has been supposed, that as long as pulsation continued, the function of respiration was imperfect; but it is not so: the pulsation depends more on the continuance of the vitality or action of the placenta, than on the state of the lungs.

(d) This is rather too near the navel, for in case of the ligature cutting through the cord, and hemorrhage consequently taking place, which has sometimes been known to occur, there will scarcely be room left to apply another ligature between the former one, and the abdomen of the child. It is best therefore to apply the ligature, in a general way, at about three fingers breadth from the navel; this leaves sufficient space for the application of another ligature if necessary.

but it has sometimes been found, that when the ligature had become slack, a considerable quantity of blood was lost, and even fatal hemorrhage has taken place.

When a child does not breathe soon after it is born, it is not always easy to say whether it is alive, for we have, at this time, no criterion of death except putrefaction; and, therefore, it behoves us always, unless this mark be present, to use means for preserving the child, by which some have been saved, after being laid past as dead. Children may be born apparently dead, in consequence of the head having remained long in the pelvis, or having been squeezed in a deformed pelvis; or owing to the cord having been compressed, either during the process of turning and delivering a child, or from its having descended before the presenting part of the child, or being so situated during labour, as to be compressed by the uterus. Some children die, owing to the head being born, covered with the membranes, sometime before the body. This is the consequence of inattention, for, if the membranes be removed from the face, there is no risk of the child. In whatever mode children are still-born, the effect is referable, either to compression on the cord, first suspending, and then destroying animation; or to pressure on the brain; or to a state of insensibility and feebleness, preventing the action of respiration from taking place after birth.

In determining on our treatment of still-born children, our first object ought to be, to ascertain if the circulation be still going on in the cord.

If the pulsation have stopped, no good can accrue from allowing the child to remain connected to the mother. The cord is to be immediately separated, and means used as shall immediately be mentioned, for the induction of respiration.

If pulsation continue, the child is not in danger from want of respiration, for the fœtal mode of living is continuing. The cause of stillness, then, is most likely a kind of syncope, or torpor, which prevents the action of respiration from being established; or it may be from compressed brain. In both cases, the skin is purple, from the blood not having been ar-

terialised, and we have no mark of distinction till respiration begin. It is very common, in the first case, for the child to be still for a minute or more; then it makes a slight sob, and breathes low, with a sound of fluid in the throat; and then, of a sudden, respiration becomes perfect. In the second case, respiration, after it begins, continues longer oppressed, and may perhaps stop, the child dying in a short time.

When the cord pulsates at the time of birth, we are never to be rash in dividing it. It is of importance to keep up the fœtal circulation, till the new mode of acting can be established, and we ought not completely to divide the cord in such cases till pulsation stop; because, if respiration should flag, we have the placenta as an auxiliary, if the connection still exist, and the pulmonary action being suspended, the fœtal mode will continue, and support life till respiration become vigorous; for the two modes of changing the blood are not incompatible. Pulsation will no doubt at length stop, either from the heart of the child stopping, or the placenta being detached from the uterus, and its function being lost; but as long as pulsation continues, and the child does not breathe perfectly and regularly, no ligature should be applied. If, however, respiration do not begin, we are to open with a lancet or scissors, one of the umbilical arteries, from which blood spouts in a small stream; and, in a short time thereafter, breathing commences. If it should not, some method must be adopted for exciting respiration, such as wrapping the child in warm flannel whilst it is still in bed; friction, especially over the thorax, with the hand, or strong spirits; applying spirits to the nostrils with a feather; or giving a gentle concussion to the body, as, for instance, by slapping the back. But the most effectual remedy is inflating the lungs, by blowing either through the barrel of a quill, or applying the mouth directly to the child's mouth, at the same time that the nostrils are held, and the cartilages of the trachea pressed gently back to obstruct the œsophagus. The attempt at inflation is to be alternated with pressure on the thorax, to force the air out again. If, by this time, the pulsation have stopped in the cord, and the child do not recover,

the cord is to be divided, for connection with the placenta is useless after the circulation stops. The cord is not to be tied, but only a loose ligature put round it; then it is to be divided, and the child removed to the fire, or put in warm water, and the artificial respiration sedulously continued. An injection is also to be administered, and if electricity could be employed, there is ground for thinking that it would be beneficial. Should the child, by these means, or after a longer time, begin to breathe, a little blood will most probably issue from the cord, and the quantity will increase. If this seem to assist the breathing, and make the child more active, it is to be permitted to proceed to the extent of two or three tea spoonfuls: but if it do not manifestly produce a good effect soon, it is to be stopped with a ligature, that it may not throw the child back into a state of inaction. Even when it is of service, it must be kept within bounds, otherwise dangerous debility will be the consequence.\* It will be chiefly useful when the breathing does commence, but is slow and oppressed, with stupor, indicating affection of the brain.

If the shape of the head be much altered, it has been proposed, whilst other means are employing, to attempt slowly and gently to press it into a more natural shape, but of the good effect of this I cannot speak from my own experience. In footling cases, it has been supposed, that extension of the spine was a cause of death, but this, I apprehend, is seldom the case.

It often is desirable to know, whether a child has been born alive, and destroyed afterwards; but the signs are extremely uncertain. When, therefore, the life of the mother is at stake, we must be very circumspect in forming our opinion. If the lungs be solid and sink in utero, the child certainly has not breathed; and although respiration may, from the first, be prevented by the midwife, it cannot by the mother. If the head be much misshapen, there is additional

\* It is occasionally of service, in weakly performed respiration to give some gentle cordials or stimulants.

ground for believing the child to have been still-born, and if clothes have been made for the infant, it is to be presumed, that the mother intended to have preserved it. When, on the other hand, the child has a healthy look, and has been recently born, the lungs swim in water, and their air-cells universally contain some air, giving a frothy appearance to the mucus squeezed out of them, there is no doubt that the child has breathed. But we cannot from these circumstances say, that it has been intentionally deprived of life. Some corroborating facts must be necessary to fix this point, such as the birth having been concealed, and no preparation made for preserving the infant; the cord being untied, by which it has been allowed to bleed to death; or its being cut longer or shorter than would have been done by a midwife, marks of violence on the child, with the total want of all exculpatory evidence.(e)

When the child has not been recently born, or is putrid, the lungs are also putrid, and contain air, although the child have never breathed. They swim in water, and the investing pleura is emphysematous.

## § 2. OF CLEANLINESS, DRESS AND TEMPERATURE.

After the child is separated from the placenta, it is to be wrapped up in a piece of soft flannel called a receiver, and given to the nurse. Next, the soft white incrustation, which

(e) For a more full, and extensive view of this subject, and its application to questions of Medical jurisprudence, the reader is referred to a very interesting Memoir "On the Uncertainty of the signs of Murder, in the case of bastard children; by the late William Hunter, M. D. &c. Medical Observations and Inquiries, by a Society of Physicians in London. Vol. VI. p. 266 & seq." As also, to those chapters of Mahon's and Fœderé's works, which treat on the same subject. From the valuable paper above referred to, it will be seen, that the physician who in these cases, makes up his opinion with the greatest caution and circumspection, and in deciding, where a legal decision is called for, leans rather to the side of mercy, will most probably act so as to satisfy his own conscience, as well as the demands of enlightened justice. See also, Mahon *Medecine legale*, Vol. II. Art. *Docimasie pulmonaire*, p. 436.

generally covers the skin, is to be gently and delicately removed, by ablution with tepid water, and the use of a sponge, and sometimes of a little soap. It is not necessary to remove every part of this, nor make such attempts as will fret the skin; but in every instance, and especially if there be reason to suspect that the mother has had gonorrhœa or chancre, the surface should be washed. It is also customary, with many nurses, to bathe the body, or at least the head, with spirits, a practice which can serve no useful purpose, but may be attended with mischief. The child being dried, it is usual to wrap a bit of soft rag round the remains of the navel string, and retain this by means of a bandage brought round the belly. It is alleged, that this is necessary to prevent umbilical hernia; but hernia does not take place because the child is not bandaged, but because the umbilicus is unusually wide; and in those countries where no compress is used, hernia is not a frequent complaint. A tight bandage produces pain, difficulty of breathing, and other deleterious effects. The only purpose to be derived from a bandage is to retain the rag, which is, for the sake of cleanliness, applied round the cord.

It was at one time the practice to wrap the child very tightly round the whole body, and to stretch both the arms and legs, whilst the head was secured by tapes, passing from the cap to the body. A more easy method is now adopted, and it seems to be agreed upon, that the more simple and loose the dress is, the more comfortable will the child be. Nurses are peculiarly afraid of the head being cold, and therefore are apt to keep it too warm. In summer one cotton cap, I believe, is sufficient to preserve the heat, but in winter an under cap may be added, but neither of these ought to be secured by pins. Soft tapes are preferable, for this and every other part of a child's dress. The rest of the clothing consists of a short shift and a wrapper of fine flannel, which is better for a week or two than the separate pieces of dress employed by many, and which add to the time and trouble of shifting the child. All children cry when shifted and dressed, therefore the shorter and simpler that the process can be

made, the better. Last of all, a cloth is to be applied, to receive the fæces or urine, and this is to be removed the moment it is soiled. By attention, a child may very early be taught to give indication when he wishes to void urine or fæces, and can then be held over a pot or bason. It is proper to encourage the child to use these at regular intervals. Children should have their bottom and thighs washed and wiped dry, always after soiling themselves. The whole body ought likewise to be regularly washed, morning and evening, with a sponge and water, at first rather tepid, but soon brought to be cold, at least of the temperature that cold water has in summer. But although this is a general practice, yet some children do not agree with it, being languid, cold, and pale, after being washed, and these ought to have the water warmed a little. Plunging the child into cold water, is perhaps, in this country, for some weeks, rather too violent a shock, but about the third month, it will be proper to do so daily.

The temperature in which children are kept, should be such as neither to increase nor diminish the natural heat of the surface. The child in utero is placed in a temperature of about 96 or 98 degrees; but its power of generating heat is probably much less than after birth. The heat of the room, and the quantity of bed-clothes, should be nearly such as would be agreeable to a healthy adult. Depressing heat is to be avoided on the one hand, and exposure to cold on the other. The apartment should be well ventilated, but the infant ought not to be exposed to the open air, for nearly a month in winter, as it is apt to produce convulsions, or catarrh, with fever, or bowel complaints.

### § 3. OF DIET.

It is customary to give some food before the child be applied to the breast, and very frequently medicine also, such as salt, magnesia, or manna, to purge off the meconium. The absolute necessity of either of these practices may perhaps be questioned, especially if the mother be able to suckle at the

usual time. A little milk and water is at all events sufficient; and with respect to laxatives, I believe that they are seldom necessary. If, however, the meconium do not come freely away, and the child have no stool in twelve or sixteen hours, or seems to be oppressed, or troubled with pains, a little manna may be given with much advantage; (f) but generally the milk which is first secreted, called colostrum, is sufficiently powerful. When the bowels begin to act, and the bile is plentifully secreted, it is usual for the child, in consequence of absorption of bile, or perhaps of meconium, to have a yellow tinge on the skin which is called the gum. This is sometimes attended with a drowsy state. If it require any medicine at all, it is a gentle laxative.

All children are intended to be brought up on the breast, and they ought to be applied early, generally, betwixt twelve and twenty-four hours after birth. Some mothers, however, cannot, and others will not, suckle\* their children, but employ another nurse,<sup>1</sup> or bring the child up on the spoon. If the latter mode is to be adopted, it is necessary to determine the proper diet, and the best mode of giving it.

It is evident that the diet which will be most suitable for an infant, is that which most nearly resembles the mother's milk. It is not sufficient that we merely give it milk, it must be milk similar to that of the human female. It is certain, that the lacteal secretion of each species is best fitted for the young of that species; and we know that there is a great diversity both in the flavour, and proportion of the component parts, of different milk. Yet, in many cases, the milk of one animal will agree with the young of a very different species. Thus a levet has been suckled by a cat. Milk consists of cream, curd, and whey; and the whey, the greatest portion of which is water, is the only part that becomes sour. The quantity of cream is greatest in ewe's milk, next in that of

(f) Or what is much better, a little mild oleum ricini, or even olive oil.

\* Van Helmont, and after him, Brouzet and others, have advised, that children should not be brought up on the breast, but fed on asses and goats milk, or a panado made of bread boiled in small beer, and sweetened with honey.

women, the goat, the cow; and then the ass and the mare. The proportion of whey is greater in the milk of mares and women, than of the cow or the sheep. With regard to the caseous part, it is greatest in the milk of sheep, the goat, the cow, the ass, the mare, in the order which they stand; and it is little in that of women. Sugar again is most abundant in the milk of the mare and woman, and less so in that of the goat, the sheep, and the cow. Women's milk contains more cream, than cow's milk, yet no butter can be made from it. It contains much whey, and yet it scarcely ever becomes sour by exposure to air, and does not pass either to the vinous or putrefactive fermentations. Acids do not coagulate human milk.

From these remarks it follows, that if a child is not suckled, the best food will be milk, resembling that of women, and the nearest is asses; but as this cannot always be procured, we must change that of cows, so as to diminish the proportion of curd, and increase that of sugar and cream, which is done by adding an equal quantity of water, or sometimes of new made whey, a sixth part of fresh cream, and a little sugar.(g) This is to be mixed just as it is required, for by standing it acquires bad properties. It is not to be given with the spoon, but the child is to suck it, of a proper heat, out of a tea-pot which is made for the purpose, and which has a piece of soft cloth tied over the perforated mouth. This diet may be occasionally alternated with a little weak veal or beef soup. Panado, made with crumb of bread, is not proper; and food, made with unbaked flour is still worse. In the third month, we may, besides the milk and water, and light soup, give occasionally a little spoon-meat, such as panado made with the crust of fine bread, and a little salt, which is better than sugar, care being taken to break down the lumps completely.

(g) Or a very good substitute may be found in the combination of equal parts of barley-water, and fresh cow's milk sweetened with the best refined loaf-sugar. And here we may mention, that brown sugar should never be used in the food of infants, as it readily runs on into fermentation, generating gaseous flatulency, in the primæ viæ and often producing great uneasiness and colicky pains. When the child is habitually costive, the food may be sweetened with manna instead of sugar.

This to be mixed with milk. Sago, salep, calves-feet jelly, &c. are also very proper; and as the child advances in life, eggs in the form of light custard, &c. are allowable. Some have proposed a panado made with the flour of wheat malt. By attention, a child may be taught to eat at pretty regular hours,\* especially after he is a few months old; and great care should be taken, that he do not eat too much at a time. If the child is not suckled, we ascertain that the artificial diet is agreeing with him, if he be lively and easy, and the bowels are correct. But when it does not suit, as is too often the case, he is either dull and heavy, or cries much, and often the bowels are either bound or too loose; and in both states the stools are fœtid, and have a bad appearance. If this condition of the bowels cannot be corrected by medicines, the child in all probability will be lost, if a nurse be not procured; convulsions, or diarrhœa will carry him off.

When a child is brought up on the breast, there is no occasion, if the supply be abundant, to give him any other nourishment for three or four months. After this time, however, it will be proper to give a little food of the kinds mentioned above, and the proportion ought to be gradually increased, as we proceed to the time of weaning, by which the organs of digestion are enabled to accommodate themselves better to the change of diet which then takes place. With regard to the age at which a child should be weaned, it is not possible to give any absolute rule. In general, the longer it is delayed, the better does the child thrive, provided the milk be good. At all times, delicate, should be nursed longer than robust children; and, if possible, weaning should not be made to interfere with the development of teeth, nor be attempted in the prospect of, or soon after the cure of, any debilitating disease. If the mother's health permit, children may be suckled from nine to twelve months. After the child is weaned, the diet must be carefully attended to, and should consist

\* It is also of advantage, that when a child is brought up on the breast, he be not applied at all hours indiscriminately; and no child should be allowed to suck whilst the nurse is asleep, as he is apt to surfeit himself.

of light soup, eggs, bread, and milk. In Ireland, potatoes form a principal part of the diet. In Scotland, oat-meal porridge is a common diet, and with many agrees very well; but it is, notwithstanding, apt to be heavy and binding, unless it have an admixture of barley-meal, which corrects it. As soon as teeth sufficient to masticate appear, a little animal food may be given once a-day.

The dress of children, as they grow up, must be regulated, in some respect, by the custom of the country, and the season of the year. It ought always to be easy and warm. Mr. Locke advises, that a child should wear thin shoes, and get wet feet, that he may become hardy; but experience proves, that the children of the poor, who are exposed to many privations and hardships, are not improved thereby. Cleanliness is essential to health, and the whole surface should be washed once a-day at least, and the hair daily combed and brushed, which may prevent scald-head. The exercise should be proportioned to the age. Infants sleep much, and can take no exercise, if we except that given by their nurses; but when they are about two months old, they may be placed on the carpet, and encouraged to creep. When they are able to walk, they should be allowed to run about freely; and it will be of great advantage, where circumstances permit, that the first years of life be spent in the country.

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## CHAP. II.

### *Of Congenite and Surgical Diseases.*

#### § 1. HARE-LIP.

WHEN a child is born, it is necessary to ascertain that it have no congenite imperfection, or have met with no accident during birth. I can here only make a few short remarks on some of the most frequent and important imperfections. The first I shall notice, is the hare-lip, which may exist in different degrees, and be accompanied with a vacancy in the palate. Sometimes an operation has been performed soon after birth,

but it often fails, and occasionally the child dies. It is better to delay it for ten or twelve months, or even longer. In the meantime, the child must be brought up on the spoon, unless the defect be so trifling, as to permit the child to suck a large nipple.

## § 2. IMPERFORATED ANUS, &c.

Imperforated anus may exist in different degrees. There may be an appearance of anus, but an obliteration a little higher up. This is discovered, by introducing a bit of oiled paper rolled up, which ought always to be done when the child is long of voiding the meconium. If the paper be soiled with fæces, we may be sure that the rectum is pervious. A blunt probe, cautiously introduced, will also ascertain the state of the gut. Sometimes the anus is covered with a thin membrane only. In other cases, a great part of the rectum is wanting, or it terminates in the bladder of the male, or vagina of the female, which last is not a fatal deviation. It is proper always to make an incision at the anus, or at the spot where it ought to open, if there be no mark of it; and this is to be carried about half an inch or an inch deep. If no intestine be found, a trocar or lancet may be passed a little deeper in the proper course of the rectum. If, by any of these means, the bowel be opened, a tent should be employed, to keep the aperture from closing.\* But if it be not readily found, we are not to prosecute the dissection farther, but must form an artificial anus, by making an incision at the lower part of the left iliac region, sufficiently large to allow the colon to be brought out, opened, and the extremity retained to the wound.†

\* In a case operated on by M. Cervenon, where the incision was obliged to be carried an inch high, it was necessary to use a bougie for a year. The child was enabled to retain the fæces, but the anus appeared as if it were sunk an inch deeper than usual. *Recueil Period. Tom. I. p. 36.*

† Vide observations on this subject, by Dumas and Allan, in the *Recueil Period. Tom. III. p. 46, and 133, and a case in point by Duret, in Tom. IV. p. 45.*

Imperforated urethra is chiefly met with in the male sex, and is to be remedied by an artificial opening in the proper direction, if the urethra seem to be pervious to a certain extent. But if it be altogether wanting, relief in the meantime must be obtained, by puncturing the bladder. Retention of urine, not dependent on malformation, is readily removed, by introducing a probe into the bladder. Deviations in the structure of the vagina and hymen have already been considered.

Imperforated meatus auditorius is very rare, and can seldom be remedied, except there be merely a membrane stretched across the canal. Adhesion of the eye-lid is often complicated with a defect in the eye-ball itself; but when this is not the case, an operation will be advisable.

### § 3. UMBILICAL HERNIA.

Sometimes the umbilicus is peculiarly large, and hernia takes place soon after birth, but still more frequently betwixt the second and fourth month. Two modes of treatment may be adopted. The first is compression, carefully maintained, which should be always tried. This, in some instances, produces a radical cure; the umbilical opening contracting, which it never does in adults. The second mode is, reducing the intestine, and tying the sac with a single or double ligature. It has also been proposed, to open the sac, and close the umbilical aperture by pins or stitches; but this has no advantage over the double ligature. Sometimes, a very great portion of the intestines is found protruded at birth, into the sheath of the cord. This may be complicated with an imperfect or transparent state of part of the abdominal parietes; but whether it be or not, the child generally dies within forty-eight hours. The abdomen is too small to receive back the intestine quickly; and even although it could be reduced, the child, if we may judge from experience, has no great probability of existing. In one case, Mr. Hey found the tumour burst during labour.

Other species of hernia are to be treated on general prin-

ciples. The bowels are to be kept open, and violent exertion avoided. The propriety of endeavouring to retain the bowel with a bandage is doubtful, and unless it could be done very effectually, it is evident that pressure must do harm. For the bowel protrudes, and is pinched by the pad. This produces pain and local inflammation, and not unfrequently convulsions.

#### § 4. SPINA BIFIDA.

Spina bifida is an imperfection of the vertebral canal and the spinal marrow. The bone is deficient generally about the lumbar vertebræ: a tumour is formed externally, which contains a fluid, and the skin is usually livid. The marrow stops at the commencement of the tumour, but sometimes begins again below it; or small nervous twigs arise from the inner surface of the sac, and pass out to form the nerves of the inferior part of the body. This is a fatal disease, and death is generally preceded by inflammation or gangrene of the tumour. In some instances, the sac is open at the time of birth. The tumour may either be or not be connected with hydrocephalus internus. If the head be enlarged, there can be no doubt of the existence of the latter disease, and nothing ought to be done to the tumour of the spine. If the urine or fæces be expelled involuntarily, or the inferior extremities be paralytic, or the tumour have burst, or sloughed, no attempt need be made for relief. Where these unfavourable circumstances are absent, then two modes of treatment offer for consideration, palliative and radical. The first consists in treating the tumour as a hernia, that is gradually getting the contents to retire within the vertebral sheath, if they are not so great as to produce compression of the brain, and then a compress or truss is applied. Or if the tumour be larger than to permit of this, then a hollow compress, or hollow piece of plaster of Paris, may be applied, at least in the first instance. This plan is only palliative, and never cures the complaint, but it prevents increase. The second exposes the patient to great danger from constitutional irritation, but if

it succeed, the cure is radical. It consists in repeatedly puncturing the tumour with a needle, and drawing off the water. At last, adhesion of the sides of the sac is produced, and the opening from the spine is closed, the spine hanging shrivelled over it, or becoming puckered at the part.(h)

#### § 5. MARKS.

Marks and blemishes are very frequent, and may be placed

(h) The very ingenious Astley Cooper, in some observations published in the Medico-Chirurgical Transactions, Vol. II. has recommended two modes of treating spina bifida, which in his hands have been attended with very encouraging success; one mode may be considered as *palliative* only, the other as *radical*.

The first consists in treating the case as a hernia, and applying a truss to prevent its descent. This truss, in the first instance, may consist of a piece of plaster of Paris, somewhat hollowed, and that hollow partly filled with a piece of lint, which is to be placed upon the surface of the tumour: a strip of adhesive plaster is then to be applied, to prevent its changing its situation, and a roller is to be carried round the waist, to bind the plaster of Paris firmly upon the back, and to compress the tumour as much as the child will bear; after some months, a truss may be applied, similar in form to that which is sometimes used for umbilical hernia in children, which must be constantly worn.

The second mode of treatment, which is to be considered as *radical*, consists in producing adhesion of the sides of the sac, so as to close the opening from the spine, and stop the disease altogether. This is done by puncturing the tumour with a needle, or any very fine pointed instrument, and thus discharging the fluid contained in it. Pressure by means of a roller, &c. is then to be applied, and the operation of puncturing is to be repeated as often as the fluid re-collects.

The first mode Mr. Cooper observes, is attended with no risk. The truss forms an artificial vertebra, when the natural is defective, a buttress which supports the part, and prevents the increase of the disease; but in this mode of treatment, the truss is required in future life; for if discontinued, the tumour re-appears, and will grow as hernia docs, to great magnitude, but with more fatal consequences. On the contrary, the adhesive mode of cure exposes the patient to much constitutional irritation, but leaves him without the apprehension, of the future return of the disease. It may also be observed, that this mode does not prevent the subsequent attempt at the palliative treatment, if the radical should not be successful. Nevertheless, it is confessed, that there are many cases of spina bifida, which do not admit of a cure by these, or any other means. See Eclectic Repertory, Vol. III. p. 438, and seq.

on any part of the body. They are of two kinds: First, simple discoloured patches, generally of a red colour, and not elevated. These are not dangerous, but rarely admit of cure. Second, elevated discoloured marks, which are of a purple hue and very vascular. These are apt to increase, and at last bursting, a fatal hemorrhage may take place. They may be seated on the face, or in the lip, eye-lid, &c. or on the spine, resembling *spina bifida*, but are more solid or spongy, and the bone is not deficient. These ought to be extirpated, as soon as they begin in the smallest degree to increase. Small marks have occasionally been removed by raising the skin with a blister, and then applying mild escharotics, or by means of caustic.\*

\* These congenite deformities have hitherto been considered as incurable. This is true with regard to many cases; but there are others which may undoubtedly be relieved. They seem to consist, as has been very ingeniously suggested by Mr. J. Bell, in an aneurismal enlargement of the vessels of the part. Adopting this suggestion, the celebrated Mr. Abernethy has deduced a very plausible mode of treating these affections. There can be no doubt, he says, "that the repletion, distension, and consequent enlargement of the dilated vessels, depend upon a kind of inflammatory action of the surrounding arteries; for if that be wanting, the mark ceases to enlarge, and if present, it increases in size in proportion to the degree of inflammatory action." The success of his practice is shown by the following cases.

A child about two months old was brought to St. Bartholomew's Hospital, says Mr. Abernethy, with this unnatural enlargement of vessels, distributed every where, beneath the fore-arm, from the wrist to the elbow; in a short time it had swollen to that degree, that the circumference of the affected fore-arm was twice the size of the other, the vessels being large and contorted.

The skin was of a dusky hue, and had not its natural smoothness of surface. The heat of this fore-arm was much greater than that of the corresponding sound one. Pressure forced the blood out of the vessels, and temporarily diminished the bulk of the limb, and made it of a paler colour. The effect of the following treatment, which it appeared to Mr. Abernethy, right to institute, was tried. First, He was desirous of ascertaining whether a permanent and equable pressure would not prevent the distension, and consequent enlargement of the turgid vessels; secondly, whether reducing the temperature of the limb would not diminish the inflammatory action, upon which their repletion seemed to depend. These two intentions admitted of being readily accomplished. A many-tailed bandage of sticking plaster

## § 6. SWELLING OF THE SCALP.

Children may, especially after tedious labour, be born with a circumscribed swelling on the head. This seems to contain a fluid, and has so well defined hard edges, that one, who, for the first time saw a case of it, would suppose that the bone was deficient. It requires no particular treatment.

seemed adequate to effect the first, and wetting the limb with water the latter. These measures were judiciously carried into effect; the pressure was first made slightly, and afterwards more forcibly, as the part seemed to bear it without inconvenience. A roller was applied over the plaster and kept wet, if the limb felt hotter than natural, so as to regulate its temperature. The success of these measures exceeded the most sanguine expectations. The size of the limb gradually diminished, and its temperature became natural. After six months, the bandages were removed, which it was not necessary to continue any longer. The limb was in some degree wasted from pressure and disease, but it soon gradually re-acquired its natural size. After the bandages had been left off for a month, the skin was pale, and had a slightly shrivelled appearance. The contorted vessels felt like solid chords interposed between it and the fascia of the fore-arm.

A child had this unnatural state of the vessels in the orbit of the eye. They gradually increased in magnitude, and extended themselves into the upper eye-lid, so as to keep it permanently closed. The clustered vessels also projected out of the orbit, at the upper part, and made the integuments protrude, forming a tumour as large as a walnut. Of course, the removal of this disease did not seem practicable. Pressure to any extent was here evidently impossible; but the abstraction of heat, and consequent diminution of inflammatory action, might be attempted. Folded linen, wet with rose water, saturated with alum, was bound on to the projecting part, and kept constantly damp. Under this treatment, the disorder as regularly receded as it had before increased. After about three months it had gradually sunk within the orbit, and the child could open its eye. Shortly after all medical treatment was discontinued, and no appearance of this unnatural structure remains.

A third case of a very extensive mark of this description, covering the back and shoulder, appears to have gotten well by the same treatment. It appears probable, from the foregoing cases, that if the preternatural distention of the vessels could be prevented, the blood might coagulate in them; and thus this unnatural contexture of vessels, being rendered impervious, might become obliterated. C.

Vide Abernethy's Surgical Observations on Injuries of the Head, and on Miscellaneous Subjects. [Art. on the treatment of one species of Nævi Marteni.] page 140, Dobson's Edition.

By applying cloths dipped in brandy, the effused fluid is soon absorbed.

#### § 7. DISTORTION OF THE FEET.

Distortions of the feet are not uncommon. They are called *vari*, when the foot is turned inwards; *valgi*, when outwards. These and similar deviations are to be cured by pressure, applied with proper bandages adapted to the nature of the case. They must operate constantly, but gradually, and ought to be applied as early as possible. It is a bad case, indeed, which cannot thus be cured by a good mechanic.

#### § 8. TONGUE-TIED.

When the *frænum linguæ* is too short, or attached far forward, the child can neither suck well, nor speak distinctly. It is very rare in its occurrence. I have not seen two children where it was really necessary to perform any operation; for in all the rest the child sucked the finger,<sup>(i)</sup> or a good nipple very readily. The operation consists in dividing, to a sufficient extent, the *frænum*, with a pair of blunt pointed scissars. If the artery be imprudently cut, the hemorrhage is to be checked by compression or cautery.

#### § 9. MALFORMED HEART.

Imperfection or malformation of the heart is a very frequent occurrence; or the *foetal* structure may continue long after birth. If the imperfection be great, the symptoms come on almost immediately after birth; but if slight, or consisting merely in a continuation of the *foetal* structure, they may not come on till the child begin to walk, or get teeth, or even later. The child is dark-coloured, or the skin has a dirty appearance, the nails and lips are livid, the breathing is more or less difficult, and he is subject to attacks of asthma, or a kind of suffocating cough, like that in *peripneumonia*,

(i) This is a good test; for, if upon the insertion of the finger into the child's mouth it sucks it readily, division of the *frænum* cannot be necessary.

or whooping cough; and whenever this attacks an infant, I augur very ill. I have no remedy to propose. Comparative ease may be obtained, by keeping the child as quiet as possible, avoiding a loaded stomach, or costive state of the bowels. For an account of the different kinds of malformation, I refer to my brother's excellent Work on the Diseases of the Heart.

#### § 10. SWELLING OF THE BREASTS, &c.

Children have sometimes a swelling of the breasts after birth. This is chiefly owing to secretion of a milky fluid, and much injury is often done by attempting to squeeze it out. Gentle friction with warm oil is of service; but if inflammation come on from rude treatment, a tepid poultice must be employed.

Hydrocele generally goes off, by applying compresses dipt in solution of muriate of ammonia. A puncture is rarely necessary. Phymosis requires astringent lotions. Discharges of bloody or serous fluid from the vagina or urethra, are easily cured by ablution. Prolapsus ani is to be cured, by keeping the bowels open, using the cold bath, and returning the gut whenever it protrudes. Incontinence of urine during the night, often depends on a bad habit, and is to be treated accordingly. When it continues long, the cold bath is proper.

Excoriation of the navel yields readily to cleanliness, and dressing with cerussa ointment; but if the constitution be bad, gangrene may take place. This is to be managed, by applying camphorated spirit of wine, supporting the strength, and keeping the bowels open with calomel. Hemorrhage from the navel, after the cord falls off, is to be checked by compression or caustic.

Scalds and burns are best cured, by applying instantly cloths wet with strong vinegar. This is the proper practice whatever part is injured; but when the face or neck are scalded or burned, it is of the utmost importance to prevent a mark, and nothing does so more effectually than the instant

application of strong vinegar. This, if the injury be slight, prevents the part from blistering, or only a very slight vesication takes place. After a few hours, the vinegar may be discontinued, and the part dusted frequently with cerussa, or we dress with cerussa ointment, or anoint the spot with this, and then make it dry with cerussa or chalk. The part is to be washed at least once a-day, to remove any irritating matter which might fret it.

If vesications have formed, they are to be opened with a very small puncture to let out the fluid, and then vinegar is to be applied; or if this give much pain, a thin cloth dipped in oil, may be interposed between the tender parts and the vinegar.(k)

In more extensive and severe burns, oil of turpentine alone, or mixed with unguentum resinosum, forms the best dressing for some time, and then the sore is to be covered with powdered chalk, which is to be continued till it heals. It represses fungus, and forms an artificial scab. In all cases, pain is to be allayed by opiates, and the bowels are to be kept open.

Ear-ache is a very frequent and painful disease of children. It is discovered, if the child be old enough, by his complaining of his ear; but if he is too young to do this, it may be suspected, by his being seized with a sudden and severe fit of crying, as if he had colic, and like it, the pain seems to remit occasionally. He does not, however, spur with his feet, nor is the belly hard, but he is restless with his head, and complains if his ear be touched. In some time he falls asleep, and next day perhaps his cap is stained with matter. Nothing gives so much relief as heat. Warm oil, or a warm poultice is to be early applied, or the outside of the ear is to be rubbed with warm landanum. If a fœtid discharge succeed this disease, and the child is deaf, the ear is

(k) A very mild and useful application in burns, particularly in those of children, is a liniment composed of equal parts of mild olive oil and lime water, well mixed together by agitation; this may be laid on with a feather, and afterwards a piece of fine old linen, dipt in the liniment applied to the part, which is to be constantly kept moist by means of the feather.

to be daily washed out with milk and water by means of a syringe. Small blisters may be applied behind the ear, and the constitution is to be invigorated. The bowels in particular are to be kept regular. Many children have occasional discharges of matter from their ears, upon catching cold, without much pain, and at that time, they are deaf. But by keeping the ear warm, and by scrupulous attention to cleanliness, the discharge stops, and the hearing returns.

#### § 11. FŒTID SECRETION FROM THE NOSE.

The mucous secretion of the nostril is sometimes exceedingly fœtid, so that it is disagreeable to come near the child. The mucus dries, and comes away in thin pieces. Astringent injections, stimulating liniments, and a variety of local applications, as well as internal remedies, such as tonics, mercury, &c. have been tried. These have not always however, a good effect. At the age of puberty, the fœtor sometimes spontaneously ceases.

Fœtid discharge from the ears generally is accompanied with a destruction of the membrana tympani, and a caries of the small bones. It is usually attended with deafness, and is very obstinate. Great attention is to be paid to cleanliness, and to the state of the constitution.

#### § 12. OPHTHALMIA.

Infants are subject to inflammation of the eye, which is most frequently of the kind called purulent ophthalmy. This begins with redness of the eye-lids, which soon swell so much as to prevent their being opened. Then a copious and constant discharge of thick yellow matter takes place. This is found also spread over the eye. If the disease continue, ulceration of the eye, or a speck on the cornea, is produced, or the eye itself may burst. In bad cases, the eye-lids are also turned out, especially when the child cries. Both eyes are generally affected. This disease is cured sooner by astringent applications than by other treatment. A solution of sul-

phate of zinc in rose water, may be injected with a small syringe into the eye, two or three times a-day. Mr. Ware recommends four ounces of sulphate of copper and of armenian bole, with an ounce of camphor, to be mixed. Of this an ounce is to be added to four pounds of boiling water, and allowed to settle. A drachm of the solution is to be added to an ounce of water. When the eye-lids are turned out, he advises a poultice to be applied, made with equal parts of curd, formed by adding alum to milk, and lard or alder ointment. The bowels are to be kept open.<sup>(l)</sup>

### § 13. SPONGOID DISEASE OF THE EYE.

Children are subject to spongoid disease of the eye. The ball becomes slowly diseased, and its structure changed, so that all the parts are confounded, and the optic nerve becomes black or brown. The tumour bursts, and a fungus shoots out. The bones become carious, the disease spreads to the brain, and the patient dies, after much suffering. This has been improperly called cancer. It admits of no cure, except by very early extirpation. Every operation that I have seen has been too long delayed, and the patients have all had a relapse.

### § 14. SCROFULA.

Scrofula is dependent on a peculiarity of constitution, derived at conception. This is often marked by a very fine skin, light hair, large blue eyes, with dull sclerotica, and delicate complexion. Others have the skin darker, or of a rough dirty appearance, the hair is dark, the upper lip tumid, and the countenance sallow, and sometimes swelled. When the scrofulous constitution is not strongly marked, the person may pass through life without any inconvenience. But when it exists in force, different parts of the body are apt,

(l) Our author has omitted to mention among the methods of cure, the application of leeches, and of small blisters to the temples, and even occasionally over the eye-lids; these have sometimes produced the best effects.

without any evident cause, to have their action deranged; their structure is changed, and then inflammation slowly takes place. The glands are most frequently affected, but the joints or viscera may also suffer. I do not think it necessary to describe these changes, especially as I have elsewhere entered pretty fully into this subject. I shall merely state what ought to be done as a preventive, or as a cure. In the first view, we advise whatever can strengthen the system, and preserve the different parts vigorous and in health; such as the cold bath daily, gentle friction over the whole surface for half an hour every evening, regular exercise in the open air, great attention to cleanliness, an open state of the bowels, and good nourishing diet, with a small proportion of wine. Animal food is much recommended. Sea-bathing is useful. When the glands are swelled, or other parts are enlarged, it is of service to rub them gently with oil for half an hour three times a-day, and apply, in the intervals, pledgits dipped in a solution of cerussa acetata. Hemlock poultices are also useful. Electricity or Galvanism are sometimes of service. When the tumours tend to suppurate, that process should be assisted by poultices, blisters, and electricity. The abscess should be early opened, and then stimulants are proper. The constitution is to be treated in the way already mentioned. Muriate of lime, or of barytes, cicuta, bark, and great variety of medicines, have been advised, but I do not know that any one can be depended on. Medicines are chiefly useful to obviate existing symptoms, such as costiveness, &c.

Diseases of the joints and spine are to be managed chiefly by issues.

#### § 15. RICKETS.

The disease called rickets is characterized by flabby muscles, relaxed skin, sallow or bloated countenance, debility, listlessness, and softening of the bones, so that the long bones become more or less curved, and their extremities enlarged. The ankles and wrists swell first, then the back changes its

shape, and the breast protrudes. The bones of the pelvis approach more nearly together, the sacrum coming forward. The head is increased in size, and the belly likewise becomes large and hard. The appetite and digestion are impaired, the bowels are bound, or fœtid stools are passed. The pulse is weak and frequent. The teeth are late of appearing, and are not good. The mind is often prematurely advanced. This disease may prove fatal, by ending with water of the head, convulsions, or hectic fever; but it often is cured spontaneously, or with assistance. It usually attacks betwixt the sixth month and second year, but it has been known to affect even the fœtus in utero. It is to be treated by a course of laxatives, to bring the bowels into a proper state, the cold bath, regular exercise, nourishing diet of animal food, general friction over the body, chalybeate medicines, and warm clothing.

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### CHAP. III.

#### *Of Dentition.*

THE formation of the teeth is begun long before the fœtus leaves the uterus. It is carried on slowly, and is not completed for several months after birth. The parts concerned in this process, are the jaw, the gum, and the soft rudiments of the tooth itself. The jaw, at first, has only a channel running along its surface; but this afterwards is divided by transverse septa, into separate cells, which are the origins of the alveolar processes. In each of these is lodged a membranous bag, containing a soft pulp. The bags consist of two lamina, both of which, especially the outer one, are vascular. These sacs adhere firmly to the gum, so that if it be pulled away from the jaw, the sacs come with it: the pulp is also vascular, and assumes nearly the size and shape which the body of the tooth is to have when ossification has commenced. The tooth consists of two parts, bony matter, and cortex striatus, or crystallized enamel, covering the bone. The

bone is formed on the pulp, which gradually ossifies; and in the eighth or ninth month of the fœtal life, all the pulps have begun to ossify, and at birth the shell is considerably advanced. Soon after this process begins, the inner surface of the sac deposits a soft earthy substance, which crystallizes and forms enamel. When ossification is advanced so far as to form the shell of the body of the tooth, the lower part becomes contracted, so as to form the neck; and as the shell thickens, the pulp, though diminished in quantity, protrudes through the neck, forming a kind of stalk or mould for the fang. If the tooth is to have two fangs, then a septum is stretched across the cavity of the neck, and the pulp protrudes in two divisions. As ossification advances on the root, the body rises in the socket, and the sac rises with it; but in proportion as the enamel is crystallized, the sac becomes less vascular and thinner, and at last is absorbed; and when the tooth has acquired its proper height, the whole membrane is destroyed. Thus it appears, that the sac is not stretched, and bursts by distention, but is absorbed, and being fixed to the neck of the tooth, and not to the jaw, it rises with the tooth.

There are only twenty teeth evolved in infancy, ten in each jaw, and these are not permanent. They are shed, to give place to others more durable and more numerous, as the jaws are longer in the adult. The permanent teeth begin to be formed even before birth. Like the fang of the tooth, they are set off from the body of the temporary tooth. A small process or sac is sent off backwards. This is lodged at the back part of the socket, where a little niche is first formed for its reception, and then a distinct socket. Hence the temporary and permanent teeth are connected together, and this connection remains for a considerable time. In the fœtus, there are, besides the temporary teeth, the rudiments of the two first permanent grinders, therefore there are twelve sacs in each jaw. The sac of the anterior permanent grinder sends, when the jaw lengthens, a process backward, to form the next grinder; and it again, in course of time, sends off the third grinder.

Generally teeth cut the gum, about the sixth or eighth month after birth. The two middle incisors of the lower jaw first appear, and in about a month those of the upper jaw come through. Then the two lateral incisors of the lower jaw, and next those of the upper one, appear. About the twelfth or fourteenth month, the anterior grinders of the lower, and soon those of the upper jaw, cut the gum. Between the sixteenth and twentieth month, the cuspidati appear; and from that period to the thirtieth month, the posterior grinders come through; so that the child, when about two years and a half old, usually has all the first set of teeth. These continue till the sixth or seventh year; and as the permanent teeth are in progress all this time, we find, besides the twenty teeth which are visible, twenty-eight below the gums. At this time, the two first permanent grinders appear at the back part of the jaw, and the middle incisors of the lower jaw loosen and drop out; and by degrees, all the milk teeth give place to others which are larger, stronger, and better adapted to the increased size of the jaws. In this curious process, which strongly displays the wisdom of God, we are early taught the perishable nature of our frame. But it is also a pleasing reflection, that dissolution is succeeded by a state of greater perfection.

Many children cut their teeth with great ease and regularity, but some suffer considerably. It is usual for the child to have some irritation of the mouth during dentition. The gums are hot and itchy, and somewhat swelled or full over the tooth, and the anterior edge is not sharp as formerly, but is rounded, and the investing membrane unfolded. The secretion of saliva is increased; and the stomach and bowels sometimes are rendered irritable. The symptoms seldom continue urgent above ten days at a time. If the child be very irritable, and the tooth advance fast, or several teeth come forward at the same time, very unpleasant effects may be produced, such as severe bowel complaints, or fever, or spasmodic cough, or convulsions; or the skin is affected, an eruption appearing on different parts, which is a much more trifling effect than any of the former. When the first grinders and cuspidati are

cutting, and come forward quickly, there is great danger, for there are then, as Mr. Fox observes, eight teeth making pressure on the gums. In every case of troublesome dentition, we have three indications to attend to. *First*, to allay local irritation. *Second*, to alleviate urgent or symptomatic complaints. *Third*, to support the strength.

The *first* is accomplished most effectually, by dividing the gum with a lancet, completely down to the teeth, if it be considerably advanced. Even when it is not so far advanced, as to be near the surface, the division of the gum gives temporary relief. Gum-sticks act something in the same fugacious manner; by enabling the child to press, or rub the gum a little, he obtains a short relief. All children instinctively, thrust their fingers into the mouth, and this may be permitted; nor is there any risk of a bad habit being induced. This is as useful as the gum-stick, and safer; for a hard gum-stick is apt to be thrust into the eye, or the gum may be bruised by it. A crust of bread is often used, but part of it may break off, and choak the child. An ivory ring is safer.

*Second*, We allay general irritation, or fretfulness, by keeping the bowels open, and exposing the child freely to cool air. The cold bath is also useful every morning, and at night, the child, if hot, may be sponged with cold water. If this do not prove effectual, we may rub the spine and belly with laudanum, which acts as an opiate without inducing the injurious effect on the stomach, which the internal exhibition too often causes. Fever if high, is to be abated by the use of the tepid bath morning and evening; the bowels are to be kept open, and if the child be plethoric and drowsy, besides giving a smart purge, either one or two leeches ought to be applied to the fore-head; and if the determination to the head continue, the scalp should be shaved, and a small blister laid upon it. Diarrhœa, if considerable and detrimental, is to be abated by those means, which will hereafter be pointed out; and especially, if it be severe, by opiate clysters; at the same time, that we, if the stools are very bad, give small doses of calomel at proper intervals, to bring the bowels into

a better state. The greatest number of children who die during dentition, perish in consequence of obstinate or neglected diarrhœa. Sickness, loathing at food, and ill smelled breath, require a gentle emetic. Spasmodic and convulsive affections require the warm bath, antispasmodics, and the general treatment which will hereafter be pointed out. It is not easy to describe the different symptoms which occur during dentition, or may be connected with it; but one general rule must be laid down, namely, to treat them, as we would do in any other circumstance, with the additional practice of cutting the gum. Delicate and slender children suffer chiefly from bowel complaints, and spasmodic affections; stout or plethoric children, are more apt to suffer from acute fever, with determination to the head.

*Third,* We support the strength directly by the breast milk, arrow root, beef tea, or, if necessary, by clysters of veal soup, or calves-feet jelly; and indirectly by restraining immoderate evacuations. If the child have been recently weaned, it is often of service to apply him again to the breast.

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## CHAP. VI.

### *Of Cutaneous Diseases.*

In the following short account of cutaneous diseases, I may perhaps have committed some errors respecting the names of eruptions. Nosological writers unfortunately, do not agree in giving uniformly the same name to the same disease, and perhaps it is not always easy to give a perfect definition by words alone. I have, however, endeavoured to detail faithfully, so far as I am able, the symptoms characterizing the eruptions which I describe, by whatever name they may be called, and also to point out the mode of treatment commonly employed.

## § 1. STROPHULUS INTERTINCTUS.

The first eruption which I shall mention, is well known under the name of red gum, and is described very accurately by Dr. Willan, as his first variety of strophulus, a papulous eruption. The strophulus intertinctus, or red gum, consists of a number of acuminated elevations of the cuticle, of a vivid red colour, not in general confluent, and sometimes even pretty distant from each other. The papulæ are surrounded with a red base. This redness is often the most evident part of the eruption in very young infants, and the disease much resembles measles. It covers a great part of the trunk, and keeps almost entirely off the face. In the centre of the spot, we may observe a very minute elevation or papula, with a clear top. There is no fever, nor has the child catarrhal symptoms. The eruption comes out irregularly, and is either more durable, more fugacious, or more partial, than the measles. On the feet, the papulæ are still more distinct. The papulæ of strophulus are often intermixed with small red specks, not elevated above the surface. They are hard, and contain no fluid, or only a very small quantity under the cuticle at the apex, giving it a glistening appearance; but they seldom discharge any fluid, and scarcely ever form pus. This eruption appears generally on the face and superior extremities, but sometimes it spreads universally over the body. On the back part of the hand, the papulæ occasionally contain a little yellow serum, but this is presently absorbed, and the cuticle is thrown off like a slight scurf. This variety of strophulus generally appears during the first ten weeks\* of life, and is not productive of any inconvenience. It seems to be connected with the state of the stomach and bowels; and any uneasiness the child may suffer during the continuance of the eruption, or previous to its appearance, seems referable to this source. The particular connection existing betwixt the chylopoetic viscera, and the surface, I do not pretend here to

\* Sometimes a few spots of this kind may be observed on the forehead of children at the time of birth.

explain or investigate. I hold the fact to be established, and from no circumstances more decidedly than these, viz. that in adults, certain kinds of foods do, with individuals, invariably produce an eruption on the surface; and that in children, where all the system is much more irritable, trifling irritation of the bowels is followed by cuticular eruptions, whilst the sudden disappearance of the eruption, on the other hand, is succeeded generally by sickness and visceral disorder. I am inclined to attribute to a cause within the abdomen, all those eruptions which are not produced by the direct application of irritations to the surface.\* The affection at present under consideration requires no particular remedies. It is sufficient to avoid the application of cold, which might suddenly repel the eruption; and filth or other irritation, which might increase it, or superinduce another affection. Should the stomach or bowels be affected, or the child be oppressed, a very gentle laxative may be occasionally administered; or should the bowels be too open, and the child flabby, a little tincture of myrrh, or myrrh with lime-water, may be given, and, if necessary, an opiate. If the eruption be repelled, and the child thereafter be disordered, the warm bath, with a gentle laxative, will be proper.

## § 2. STROPHULUS ALBIDUS.

The next variety is the *strophulus albidus*, which is an eruption consisting of minute whitish specks, hard, and a little elevated; sometimes, but not always, surrounded by a very slight and narrow border of redness. No fluid is contained in the papulæ, which appear chiefly on the face, neck, and breast. This generally is met with after the period at which children are subject to red gum; it remains rather longer, but requires no peculiarity of treatment. Sometimes children, at a more advanced period, have this kind of eruption on the

\* Dr. Underwood is inclined to think, that when children are subject to repeated eruptions, the milk does not agree with the stomach, and ought to be changed. I am very much disposed to adopt his opinion.—See also Turner on the Diseases of the Skin, p. 69.

neck, which is exposed to the sun in warm weather. It has sometimes been mistaken for the itch.

### § 3. STROPHULUS CONFERTUS.

The strophulus confertus is a very frequent affection during dentition, but seldom appears before that period, though it may continue after it. It consists of papulæ, often set extremely close together, forming patches, varying from the size of a six-pence to a dollar. Such, at least, is the appearance on the face and arms, to which part it is often confined, especially to the former. But it sometimes appears on the trunk, and there the papulæ are larger, flatter, and surrounded with more inflammation, than those on the face or arms, looking at a distance like measles. This eruption not only varies a little, according as it appears on the trunk or extremities, but also according to the age of the child. For after the seventh month, we find, especially on the arms, the papulæ pretty large; and either red, with scarcely any appearance of lymph at the top, or of a light yellow colour, but the base surrounded with a halo or inflamed rim. These papulæ may on some parts be distinct from each other, whilst elsewhere they form clusters so close, that the redness surrounding one, communicates with that of another, forming altogether a large inflamed ground-work. In some cases, the red patch is the prominent feature; it may be as large as a dollar, with innumerable little dots within it, like pin heads, with clear or watery-looking tops, or larger red hard papulæ. This eruption is sometimes preceded by sickness, and, in certain circumstance, has been mistaken for measles; but it is attended with little or no fever, and has none of the catarrhal symptoms met with in measles. By not attending to the characters of the two diseases, they may be confounded; and not unfrequently, when young children take measles, the strophulus confertus appears on the arms, previous to the proper eruption, or even along with it. Dr. Underwood says, this eruption does not dry off like measles; but as Dr. Willan remarks, it often does terminate with a slight exfoliation of

the cuticle. A variety of this disease appears like red patches on different parts of the body, particularly on the arm, and often coming out in succession. They are as large as a split pea, and a very little raised toward the centre. By near examination, several small papulæ may be discovered, which are something like vesicular points. In three or four days, the patches become yellowish or brown, and covered with small scurf. This is denominated by Dr. Willan, *strophulus volaticus*, and is said not to be very common, but I think it is frequently met with. It is seldom necessary to give any medicine for this complaint. If, however, it be troublesome, it is usual to prescribe gentle laxatives, and testaceous powders. Some advise emetics, and the use of the bark; but neither, I believe, are in general necessary.

#### § 4. STROPHULUS CANDIDUS.

*Strophulus candidus* consists of papulæ having a smooth shining surface, which appears of a paler colour than the rest of the skin, and the base is not surrounded by any inflammation. It is described by Dr. Underwood as resembling itch, but is neither red nor itchy. It generally either attends dentition, or succeeds some acute disease of children, and is justly considered as a very favourable symptom. It is most frequently met with on the trunk of the body, the arms, or forehead. In a few days the papulæ die away. No particular treatment is necessary.

#### § 5. LICHEN.

A different eruption from any of the foregoing is the lichen, a term restricted by Dr. Willan, in his elaborate work, to a papulous eruption, chiefly affecting adults. It may, however, appear also in children; and I have seen it succeed some of their febrile diseases, as, for instance, measles. It consists of numerous distinct papulæ, some of which are pale at the top, but very slightly red at the base; these are generally small like pin heads. Others are larger and flatter, and

more inflamed, but have always at first a clear apex, and do not end in ulceration, but die away in slight scurf. Sometimes on the body, there are small shining or silvery looking patches, from exfoliation of the cuticle; or the skin may peel off more extensively, as if it had been blistered. They resemble often the papulæ in strophulus, but seldom form in clusters, and have not, in general, any diffused redness connecting one papula to another. There is, however, sometimes about the joints or fore-arm, a considerable degree of red efflorescence, covered with scurf. This eruption may be produced by exposure to heat, and by drinking cold water when heated, or other less obvious causes. It is frequent in warm weather, and a species of this is known under the name of prickly heat. It is preceded often by febrile symptoms, and the eruption itself may last for more than a fortnight, but in a few cases it goes off in a day or two. These papulæ, at different stages, bear a resemblance to two very dissimilar diseases, the itch and the measles; but it is not pustular like the itch, neither does it ulcerate; it is not very itchy, and if scratched so as to take off the top, it does not yield matter, but a little bloody scab is formed. It differs from the measles, in being papulous, and having on the spots, before they form slight scurf, a clear looking top; it in general lasts longer than the measles, and is not attended with catarrh. Farther, it is sometimes accompanied with a broad scurfy efflorescence, about the elbow joint, or other flexures. A suitable dose of calomel is the best remedy, or, should the patient be oppressed, an emetic and saline mixture may be given. When there is no febrile affection, it will be sufficient to keep the surface clean by means of the tepid bath.

#### § 6. INTERTRIGO.

Intertrigo is a kind of erythematic affection of those parts of the body where the skin forms folds or sinuosities, as, for instance, the joints of fat children. It also is very common about the nates and inside of the thighs, in consequence of the urine fretting these parts. The inflamed surface ought to be

washed occasionally with tepid milk and water, and the child should never be allowed to remain wet, but ought to be bathed, and gently dried after making water, when the thighs are affected. Afterward the parts are to be dusted with some cool powder, such as tutty, white lead, levigated flowers of zinc, &c. It is not usual for intertrigo to end in gangrene or suppuration, but sometimes the form of the disease changes, and the cellular substance inflames; either of these terminations may then take place, and will require the usual treatment.

#### § 7. CRUSTA LACTEA.

Crusta lactea, or milk blotch, is a scabby eruption, which appears generally first on the cheeks or forehead, and then extends over a considerable part of the face, and even the scalp. This disease belongs to the *achores*, or pustules containing a fluid something like honey. The pustules are red, and the top soon becomes covered with a laminated scab. Sometimes the pustules are large and distinct, but often small and confluent, so as to form a considerable patch.\* A succession of pustules may appear on the same place. They are not in general painful, but are occasionally itchy, especially at night. In some cases, the eruption spreads to the neck, breast, arms, and legs. During dentition, especially if the child be plethoric, this eruption is frequently met with on the face, while the body is covered with papulæ, like prurigo or small *achores*. Inflamed pustules first form on the face, containing a yellow viscid fluid, and having red margins, then they grow larger, and thick elevated crusts form, of a yellow or brown colour. When the crust is rubbed off by the child, the part is dark-coloured, and watery-looking, with little bits of crust adhering to it. This disease leaves red blanches for a time. The skin about the neck has sometimes a scurfy herpetic appearance. Strack remarks, that in *crusta lactea*, the urine has a particular smell, like that of a cat. Lory describes a variety of this

\* "Incipit a vesiculis numerosis cohærentibus, oleoso succo turgidis." Plenk, 71.

disease, under the name of *ignis sylvestris* or *volaticus*; and says it goes off in blisters or thin crusts, without any inconvenience, except a degree of itching. He remarks, that it may attend the cutting of every tooth, and may even continue for years, but this circumstance I have not met with. He has observed, that when the glands of the neck swell, the eruption goes off, and when they subside the eruption returns. This is a disorder which is often met with when the child is on the breast. It has been attributed to the richness of the milk, and generally goes off after one or two teeth have made their appearance.\* It is not attended with any danger, scarcely with inconvenience, and never leaves any mark or scar behind it. But having been sometimes, at an early stage, mistaken for syphilitic blotches, it has caused much unnecessary alarm. With respect to the treatment, very little is necessary, except keeping the bowels open, or giving purges occasionally; and if the child be plethoric, making the diet more sparing. In general, strong local applications are improper; but if any particular part be very sore, a little weak solution of acetate of lead may be safely applied for a short time. In obstinate cases, sulphur-vivum ointment has been found serviceable. Lime-water is also proper, or weak solution of muriate of ammonia, or ung. hyd. nit. Dr. Armstrong advises the lac sulphuris, in such doses as keep the bowels open, and Dr. Underwood recommends Harrogate water; both of which will be found of benefit. Stoll proposes, after Strack, a decoction of the *viola tricolor* in milk, to be taken internally. Frank observes, *externis hac in tinea remediis vix locus est: quæ illam exsiccant, cum damno admoventur.*

#### § 8. ANOMALOUS ERUPTIONS, &c.

During dentition, or in consequence of affections of the bowels, different anomalous eruptions may appear, which are not distinctly referable to any well defined species.

\* Some have considered this as a scrofulous disease. Vide Stoll Prelectiones.—Frank de Morb. Curand, &c.

Sometimes we find upon the arm, one, two, or three inflamed portions of the skin, something like small-pox, but rather larger, with a small acuminate speck of lymph beneath the cuticle at the apex, or sometimes the top is flattened and shrivelled. Occasionally, a greater number of pustules appear on the body, pretty large, hard and inflamed round the base, with a white top. This kind of eruption is not attended with fever, and is neither painful nor itchy ; it goes off in a few days without any medicine.

In general it should be a rule in the treatment of eruptions to wash the surface, once a-day at least, with tepid water, and keep the bowels open. In obstinate cases, preparations of sulphur, antimony, calomel, and arsenic, have been employed ; but the last is too dangerous to be admitted into practice. Sometimes the juice of the *sium aquaticum*, in considerable doses, or the decoction of the woods, will be of service ; and in indolent eruptions, the tincture of cantharides has been beneficial. As external applications, lemon juice, the decoction of hellebore, or of stavesacre, infusion of tobacco, as a partial lotion to the part, sulphureous baths and lotions,\* sulphur ointment, ung. acid. nitros. ointment of nitrated mercury, or weak solution of corrosive sublimate, or of acetate of lead, or camphorated liniment, or the application of cloths wet with butter milk, are employed, sometimes with benefit. Sea-bathing is frequently of service, and a bath of warm sea-water often does great good.

#### § 9. POMPHOLYX PEMPHIGUS, &c.

Authors describe some other eruptive diseases, which may be noticed here with propriety : one of these, called pompholyx, consists of a number of vesications of different sizes, appearing on the belly, ribs, and thighs, and containing a sharp lymph ; they may appear during teething, or in bowel complaints, and continue for several days. These vesica-

\* Diluted hepatised ammonia, but especially solutions of the sulphuret of lime or potash, may be employed for this purpose.

tions are not uncommon in very warm weather ; and I think boys are most subject to them, especially about the ankles if they do not wear stockings. Lory considers this disease as a kind of erysipelatous affection, produced by the heat of the sun. It requires no medicine, but the lymph ought to be let out by a small puncture.

A similar appearance, generally attended with fever, and sometimes with aphthæ, is more serious, and is called pemphigus infantilis. The vesicles, at first small, soon become pretty large and oval, and their contents become turgid. They appear soon after birth, generally in emaciated infants, affect both the trunk and extremities, are surrounded with a livid inflamed halo, and when broken, are succeeded by spreading ulceration. Notwithstanding bark and cordials, the fever and irritation generally prove fatal in about a week ; and only those children are saved, who were previously possessed of a tolerable degree of strength. This may be mistaken for syphilis.

Another kind of eruption attacks children above two years of age, suddenly covering the greater part of the body. It consists of red elevated spots, at first sight, something like a kind of pock. The spots are distinct and most numerous on the thighs and legs. They are of a dark red colour, pretty flat, with a smooth flatted vesicular top, which is dry, and does not burst, nor discharge matter, but gradually dries and desquamates. The eruption is scarcely painful or itchy, and is not attended with fever. It may continue for four or five weeks, and is sometimes combined with lichen, or other cutaneous diseases. The bowels should be kept open, and some advise antimonial wine to be given, with a little tincture of cantharides.

#### § 10. MILIARY ERUPTION.

Sennertus describes, under the name of sudamina, an eruption like millet seed, fretting the skin, and affecting children about the neck, arms, &c. Plenck defines it in the following terms. *Sunt vesiculæ granis milii magnitudine et similis, su-*

*bito absque febre erumpentes.* The child should be bathed occasionally in tepid water. This eruption often takes place in hot weather. A similar eruption, attended with fever, is also met with, which I find very well described by Dr. Willan, in his reports on the diseases of London, under the name of acute miliaris. It does not affect infants, but children old enough to take active amusement. It begins with a febrile attack, attended with head-ache and pain in the back. The tongue is of a dark red colour at the edges, with the papillæ prominent as in scarlatina; the rest of the tongue is covered with white fur. The pulse is small and frequent. Presently the patient complains of heat and pricking at the surface, is sick at stomach, and perspires freely through the night. At a period varying from the third to the sixth day of the fever, an eruption appears, of small pustules like millet seeds. These are of a red colour, but contain at the top a white lymph, and are either diffused over the body, or collected in patches on different parts, especially the back and breast; they may alternately appear and disappear, and though the same pustule does not continue long, it may be speedily replaced. They may sometimes be combined with small red efflorescences, and generally vesicles appear on the tongue and fauces, ending in aphthous ulceration. The complaint often terminates in about ten days, but it may be prolonged even to twenty. It is frequently the consequence of being overheated, or drinking cold water in that state. It requires first of all an emetic, and then a purgative. During the course of the disease, the patient should be kept moderately cool, and use acidulated drinks freely.

#### § 11. PRURIGO.

Itchy eruptions are frequently met with on children, but these are not always the true itch, nor the consequence of infection. The prurigo mitis, described and delineated very accurately by Dr. Willan, is a disease often met with in spring. It appears without any previous indisposition, and consists of soft smooth elevations of the skin, or papulæ, dif-

fering in colour very little from the surrounding integuments. When they do become red, it is in consequence of friction. If the top be rubbed off, a clear lymph oozes out, which forms a thin scab, of a dark or almost black colour. The eruption is itchy, especially on going to bed, and if scratched, it may become pustular and contagious, which it is not in its early stage. At first, it may be removed, by washing frequently with tepid water and a little soap, or lemon juice; but if neglected, it requires the application of sulphur.

A variety of this disease consists of minute red acuminated papulæ, with a very small vesicle at the top, terminating not in suppuration, but yielding, when scratched, only a little clear serum. Sulphureous preparations give relief, and time, with attention to cleanliness, confirms the cure. Sometimes very little itching attends this eruption, and it disappears by using the tepid bath.

#### § 12. ITCH.

The scabies,\* or true itch, is contagious, and consists of small pustules, which have a hard hot base, with a watery-looking top. They are attended with an intolerable desire to scratch; in consequence of which, the tops are rubbed off the pustules, and scabs come to be formed, partly by blood, and partly by a kind of matter, furnished by the little ulcers. But if the pustules be not disturbed, but removed by proper applications, they end in a slight desquamation of the cuticle, "*quæ vix furfur aliquod ostendat.*" The itch first appears betwixt the fingers, on the wrists and hams, but if neglected, it may spread over the whole trunk and extremities, and, in consequence of the continual irritation, impairs the health; nay, some children die in consequence of it. In neglected cases, the inflammation surrounding one pustule spreads to another, and the part becomes universally red, with pustules or scabs, according to circumstances, scattered over it. This

\* Children, in consequence of handling mangy dogs or kittens, are sometimes affected with an obstinate itchy eruption, which is not scabies, but may be cured by the remedies used for the itch.

is often the case on the back of the hand, and fore-part of the feet. Sometimes small boils and phymata appear in the course of the disease, on the thighs or body, or about the face. The cure may generally be accomplished, by frequent ablution, and rubbing the parts affected with sulphur-vivum ointment,\* which, in obstinate cases, may be rendered more effectual by the addition of powdered hellebore, or sal-ammoniac. Rosenstein says, that the hands are very soon cleared, by washing them with a strong decoction of juniper-berries; and that when the eruption is great, as, for instance, on the feet, he has applied cabbage leaves with advantage. They cause at first a great discharge, but the parts heal afterwards.

Sometimes the friction excites an eruption different from itch, and kept up by the remedies intended to cure it. M. Burdin remarks respecting this, that it consists of small round pustules, “qui se remplissent quelquefois de serosité, et dont la cicatrice laisse le plus souvent une tache d’un rouge brun, le prurit qu’elle occasione est aussi moins fort que celui de la gale.” In inveterate cases, the use of Harrogate water is of great benefit. In order to avoid the smell of sulphur, other applications† have been employed, such as sulphuric acid, or nitrous acid combined with hog’s lard, ointment of nitrated mercury, camphorated ointment, hellebore, or corrosive sublimate, mixed with hog’s lard, &c. These often fail, and even when they do remove the eruption, the cure is said frequently not to be permanent. Itch may be combined with other diseases, such as herpes, syphilis, &c. in which cases, it is more obstinate than usual, and may sometimes require the use of mercury.

\* Dr. Joseph Clarke considers it as dangerous to use sulphur ointment with infants, lest the eruption be suddenly repelled; and advises rather to boil a piece of stick brimstone in water, in order to make a bath.

† M. Becu advises the following lotion: Take of tobacco leaves two pounds, sal-ammoniac one ounce, ammonia two ounces, water three Paris pints. Infuse for two hours.

## § 13. HERPES.

Herpes has been divided into different species. It has been described under a variety of names, and sometimes confounded with lichen, or its different appearances described under the name of impetigo. Strictly speaking, the eruption in herpes is vesicular, the base surrounded with erysipelatous redness, the top terminating in a thin scab or scale, and the vesicles in general small and confluent, and disposed to spread. But some diseases which consist rather of small pustules than vesicles, and others which have neither vesicle nor pustule, have been admitted as species of herpes. Plenck and others have described a great number of species; but we may be satisfied with enumerating the following, though, in strict nosology, they are not all referable to the same genus.

1st, The herpes farinosus, dartres farineuses, or dry tetter. This, which is infectious, consists of efflorescent patches of various sizes, covered with scurf or small scales. The patches appear like flat red and slightly elevated portions of the skin, having a distant resemblance to the blanes of the small-pox about the twentieth day of the eruption, but darker in colour, and very soon covered with scurf, through the interstices of which the surface is seen to be red. The shape is irregular, and the size generally varies from that of a small split pea to that of a shilling. These spots usually begin like small pimples, slightly raised with a very small vesicle at the top. They gradually extend into flat dark red spots, covered with slight scurf. Often they extend like a ring, or increasing circle which is red and scurfy, or vesicular, whilst the centre becomes sound. Sometimes there are many small vesicles near each other, which contribute to the formation of these patches. They are not painful, but itchy. The patches may be very few, or may be numerous, coming out on great part of the surface, but especially on the extremities and face; sometimes on the trunk, and about the arms. They frequently occur on the scalp, which becomes bald at the part, and the baldness increases, as the red circle extends. Within the

circle the skin is whitish and a little scurfy. They are also to be met with on the soles of the feet. When the scurf falls off, the skin below, as Pinel observes, is generally sound, but continues discoloured for a length of time; and often the scurf is renewed, or new patches come out in other places. Sometimes, however, the parts become excoriated, and even fissures may take place, or the cuticular lines become more distinct, without excoriation. In consequence of excoriation, or from scratching, a fluid exudes, which forms rough irregular scabs of a yellowish colour, scattered over a pretty extensive portion of red skin, which is dry, but not smooth. Sometimes in the vicinity of this, we may observe a thick cluster, apparently of white papulæ, giving the skin a dirty white rough appearance. These, however, are vesicles, containing a very limpid fluid. Their base is white and hard. In young children, the nostrils are apt to become obstructed; and when the upper part of the face is much affected, the eye-brows and eye-lashes fall off. It requires considerable attention, in many cases, to distinguish this disease from syphilis. In some instances, especially in spring and summer, a variety of this is met with, the characteristic of which is, that the spots are smaller, and come out suddenly, and are occasionally preceded by slight fever. They are of a red colour, inclined to yellow, have little scurf, and continue for some time after the scurf falls off. This is sometimes combined with intertrigo and strophulus. Another form, met with frequently in adults, but seldom in children, is an universal affection of the extremities, and sometimes of the trunk also; the skin being covered with small scales, or scurfs, which are found in considerable quantity in the bed in the morning.

2d. *Herpes miliaris*,\* or wild-fire, which, when it appears

\* Some have ranked under this the *phyma* and *ecthyma*, but these are inflamed pustules. Others, with more propriety, have included the *eczema*, or eruption of small vesicles, with inflammation, produced in summer by the rays of the sun. The larger vesicle, called *pompholyx*, is different. In these eruptions, a liniment, composed of sweet almonds and hog's lard, has been

on the lips, has been called *exanthema* or *herpes labialis*. This consists of minute pimples, or vesicles like millet seeds, which are confluent, appearing in clusters, or sometimes like rings. They contain a lymph of a glutinous nature, which exudes, and forms rough yellow scabs; and from the quantity of the fluid, the linen is very apt to stick to the part. When the scab falls\* off, it is apt to be renewed, or still more frequently the disorder spreads in a kind of circling direction. These rings or clusters may become very numerous, and sometimes invade pretty quickly; so that Lory is disposed to rank this among acute diseases. The parts are generally very itchy. This disease is not always confined to the surface, but may also attack the throat. In this case, the local symptoms are preceded by fever for a day or two, and then vesicles appear on the fauces, which are soon followed by a herpetic eruption about the mouth, and inside of the lips. The internal affection ends in slight ulceration, the external in the formation of scabs, and the complaint is removed in about a week. If not known, it is mistaken for a more malignant disease. Dr. Willan has described this under the name of *angina herpetica*.

Another species of herpes appears on different parts of the body, but especially on the face. It consists of a pretty large portion of inflamed skin, covered with different broad thin scales, which, when removed, are soon replaced. This is described as being a variety of *ignis sacer*. It is not so common with children, as in women, and it is very obstinate.

3d. The phagedenic herpes, or *herpes exedens*, differs from the former species, in ulcerating and destroying the skin, sometimes spreading along the surface, sometimes penetrating deep. It generally begins with small painful pustules, or *phlyctænæ*, with dark erysipelatous margins, which discharge sharp matter, run together, are hot and itchy, and seem to eat away the skin, forming an ulcer called *noma*.

found useful. Sometimes heat, or other causes, produce a different kind of eruption, already described under the name of lichen.

\* If the scab be forcibly picked off, the part below is found raw and glossy, without apparent granulation.

When the herpes farinosus is confined to a small part of the body, it will in general be sufficient to apply frequently to the spot, a little of the ung. hyd. nit. or ung. acid nitros,\* or ung. sulph. viv. with daily ablution with soft soap and water. Should the spots resist this application, it may be useful to touch them with a weak solution of nitrated silver, or a strong solution of muriate of mercury, or lime-water, and afterwards apply the ointment. If the herpes be extensive and obstinate, internal remedies are sometimes necessary, such as decoction of sarsaparilla, with a little antimonial wine; or Stoll advises cow's milk whey, with the juice of nasturtium. In all such cases, the daily use of the warm bath, succeeded by gentle friction with a dry cloth, will be highly proper. In obstinate cases, sulphureous baths are beneficial. In sudden eruption of herpetic spots, if attended with any slight degree of fever or sickness, an emetic, followed by gentle doses of calomel, will be of service.

The herpes miliaris, like the former, is often cured by the ointment of nitrated mercury, or by being bathed with water containing a small quantity of nitrous acid. When extensive and obstinate, sudorific decoctions may be required and stimulating or astringent local applications, such as ointment of red nitrated mercury, lime-water containing muriate of mercury, or solutions of the sulphate of zinc, or acetate of lead. Sometimes it is necessary, by fomentations or poultices, to loosen and remove the scabs, previous to making these applications. Calomel is useful.

The spreading herpetic ulcer generally requires strong stimulants, such as caustic, butter of antimony, camphorated spirit of wine, resinous ointment, ol. terebinthinæ, &c. If, however, the ulceration be very superficial, an ointment, containing white calx of lead, or calx of zinc, is often of service; and sometimes the spreading may be stopped by cauterizing a narrow rim of skin round the ulcer. The internal

\* Frank recommends the tobacco cerate, for which he gives the following recipe: R. succi nicotianæ, ceræ flavæ, a ʒiii; resinæ pini, ʒss; terebinth. ʒss; ol. myrrhæ, q. s. fiat ceratum. De Morb. Cur. Tom. IV. p. 154.  
—With children this must be used cautiously

use of nitrous acid may likewise, in this kind of herpes, be made trial of.

#### § 14. ICHTHYOSIS.

Children are sometimes affected with ichthyosis, a disease in which the skin becomes dry, and covered with scales resembling in their distribution, and sometimes in their appearance, those of a fish. This disease may come on at any period of life ; it may even be connate, but this is very rare. It is proper to employ the warm bath, and during its use, to pick off the scales. Their regeneration is to be prevented by friction, and repeated bathing. Sometimes children have this disease conjoined with boils.

#### § 15. PSORIASIS.

The scaly tetter, dry itch, or psoriasis of Dr. Willan, consists of red rough spots, which are very soon covered with a laminated scale, sometimes as thick as paper, but generally thin, and very like a bit of the scale of a herring dried. They are irregular in their shape and size, occasionally not larger than a coriander seed ; sometimes as large as the nail of the little finger, resembling a dried fish scale pasted on the skin ; and frequently they are interspersed with shining silvery-looking portions of the surface. These scales are formed by the exudation of a whitish matter, which is very glutinous, and, as Sylvius observes, stiffens the linen, when it happens to exude in sufficient quantity. The spots on children generally begin like papulæ, of small size, and vesicular at the top. These end sometimes in scurf, oftener in thin scales, as has been described. On the back of the hand, the vesicles are sometimes pretty large ; whilst in the palm of the hand, the eruption is rather pustular, and ends in broad thin rough scabs of a yellow colour. In the early stage, it is sometimes combined with strophulus. The parts are itchy, but when they are scratched, matter does not come out by the removal of the scales, but a little blood flows. This

eruption often begins on the face or neck, and spreads to the body and extremities. It is very obstinate, and sometimes destroys the nails. When it has continued for some time, the skin, especially about the hands and feet, is found to be universally red, with dark-coloured scales interspersed. The skin looks as if it had been scalded, and partly covered with thin scabs or scales, in different degrees of adhesion ; and in some cases, the whole of the extremities, and even the body itself, or the head, becomes red, partially excoriated, and covered partly with scales and scurf, and partly with scabs, which are yellow, and pretty thickly set, often loose and easily detached. Sometimes on different parts of the body, particularly on the arms or legs, there are many soft red indolent bumps, more especially if the child have been seized with this disease soon after the small-pox or chicken-pox. The appearance on the head is nearly the same as in pityriasis, but it in general wants the white scurf. It is rare not to find the head affected in this disease.

Excoriation sometimes also takes place about the anus, with a slightly elevated state of the surface ; in consequence of which, and the disease of the skin taking place soon after birth, I have been consulted respecting children given out to nurse, who were apprehended to have syphilis. Dr. Willan remarks the syphilitic appearance of this disease, but justly observes, that all other marks are absent. The syphilitic form of this disease is attended with hoarseness, and the patches are of a livid colour, with a slighter degree of scaliness, and the margin is sometimes higher than the centre.

It is not, like the itch, very contagious, nor is it easy to say what occasions it ; but we know, that inattention to cleanliness is favourable to its production. The application of preparations of sulphur, and ointment of nitrated mercury, with the use of the tepid bath, especially made with seawater, daily, will often cure this disease ; but in obstinate cases, we must give some sudorific, such as antimonials, or decoction of sarsaparilla, alone or with calomel, or have recourse to the Harrowgate or Moffat waters, which have great efficacy. They should be used both externally and in-

ternally. Solutions of soap, or of alkali, or of sulphuret of potash, form very useful baths. Decoctions of hellebore, or solution of muriate of ammonia or of oxy-muriate of mercury are also proper, as external applications. The application of cloths wet with butter-milk, or a poultice of butter-milk, and oat-meal, sometimes facilitates the cure.

#### § 16. IMPETIGO.

Impetigo is a term differently applied by writers, and hence uncertain in its meaning. By this term, I understand a disease, which consists of broad vesicles about the size of a split pea, circular in general, but with a shelving jagged margin. These are surrounded with diffused redness, and contain purulent-looking matter. Sometimes the top is dark-coloured, as if it were filled with bloody lymph, and the margins are of a livid red colour. Some are of an irregular shape; and the contained fluid being very small, the general appearance of the whole blotch, is livid. These vesicles are very numerous, especially on the extremities, and soon form crusts, or thin flat rough scabs, of a yellow colour, inclining sometimes to brown or red. The scab is surrounded by a diffused redness, of irregular shape; and this red portion of skin seems a little radiated or puckered, as if drawn toward the scab. This disease is attended with itchiness, and, if much scratched, the parts may be fretted and ulcerate. It is occasionally attended with a rough, scaly appearance of the palm of the hand. Sulphureous preparations are useful, or the parts may be frequently bathed with solution of oxy-muriate of mercury, or the ung. hyd. nit. may be applied. The tepid bath should be used to promote cleanliness.

#### § 17. PITYRIASIS.

The pityriasis is a disease known commonly under the name of the dandriff. It consists of a dry, scurfy, and scaly eruption on the head, amongst the hairs. Near the forehead, the skin is covered with a thick white scurf, which can

be removed in a powdery form ; farther back, larger scales are formed. This is cured, by cutting and shaving the hair, and brushing the head daily with a hard brush, and washing it with soap and water. If neglected, ulcers may form, and the disease be converted into the one next to be described. Pityriasis is sometimes infectious. A variety of it appears like small red marks on the scalp. The circumference extends, and continues red, whilst the centre becomes pale and scaly. It is accompanied with falling off of the hair.

#### § 18. PORRIGO.

The porrigo is a collection of pustules, containing a yellowish-coloured fluid, something in colour and consistence like honey, and ending in a white or yellow scab. The pustules are numerous, forming about the roots of the hair ; they are itchy and contagious. They are not unfrequently accompanied with an eruption on the face, and other parts of the body, which has been taken for the itch ; and indeed this disease has been called scabies capitis. But the pustules are larger and more solitary than those of the itch, contain a straw-coloured thick fluid, and form crusts, which, especially on the hands, are flat and ragged, and resemble, in miniature, the scabs on the head. On the body there will be found many small pustules or pimples, with a red base and lymphatic top ; and these also appear on the face, which is seldom the case in itch.\* Often about the back of the neck, the skin is very red, with small scabby pustules. Sometimes scabs form on the chin, and the glands below suppurate. Many rank the crusta lactea with porrigo, and consider both as scrofulous. It differs from the pityriasis or dry scab, in being pustular

\* This is sometimes accompanied with considerable inflammation round the small pustules on the face, which are intermixed with herpetic spots and vesicles. This affection is very itchy. An eruption of papulæ like porrigo, or of small vesicles with inflamed margins, sometimes appear at the same time on the arms. This requires the application of an ointment, containing camphor and sulphur.

and humid. In order to cure this disease, it is useful to remove the hair. This has been proposed to be done, by pulling it out, by means of a pitch plaster; a method certainly effectual, but not very gentle, and never necessary. In mild cases, it will be sufficient to cut the hair very close, and apply a poultice or some emollient ointment, to loosen the scabs, and set free the hair. The head is then to be washed with soap and water, and as much of it shaved as can be done; and thus, by a repetition of the process, at the same time that proper applications are made, the whole head may at last be cleared. If, however, the disease be more extensive and obstinate, some depillatory\* may be employed; but this is rarely required. For this purpose, a combination of the ung. picæ, and white hellebore, has been proposed, and is recommended by Dr. Underwood. It is to be rubbed warm upon the head, for near an hour at a time; and then a bladder is to be put over the scalp, to prevent the cap from sticking. After three or four applications, the scabs, and even the hairs, are loosened, and these are to be removed by degrees; after this new hair will grow, without any scab at the bulb or root.

Various applications have been proposed, whether the hair be or be not taken out. Some employ lotions,† others ointments. A very useful preparation is made, by combining the sulphur vivum, camphor, and oil of bays. This is a very effectual application, and ought to be applied morning and evening. Before each application, the parts should be washed, with a weak solution of oxy-muriate of mercury, or muriate of ammonia or potash, or with soap and water, or a lotion composed of two drachms of sulphurate of potash, a drachm of soap, and six ounces of water. The ung. picæ, and ung. hyd. nit. are employed with advantage. Sulphur ointment;

\* Quick-lime is sometimes employed for this purpose, and enters into the composition of many of the oriental depillatories.

† Dr. Underwood recommends the decoction of tobacco, or lotio sapo-nacca; Dr. Frank, urine; and Mr. Barlow, the following lotion: R. kali. sulph. ℥iii; sap. alb. ℥iiss; aq. calcis, ℥viiss; spt. vini, ℥ii. M.—Dr. Heberden recommends the decoction of white hellebore.

with the addition of a little white precipitate of mercury, or the weak mercurial ointment, have been likewise found of service. In some obstinate cases, caustic, or cantharides ointment, or ointment containing verdigris have been used; and afterwards lime-water, or solution of sugar of lead, have been applied to heal the scalp. Internally lime-water, decoction of the woods, sulphur, and small doses of calomel, have been given, and all of them, I think, occasionally with benefit, though Dr. Heberden remarks, that he has found little benefit from internal medicines. When an eruption like itch appears on the body, along with porrigo, it will be useful to wash the parts with lime-water alone, or with the addition of a little oxy-muriate of mercury, or with a sulphureous lotion; or anoint the parts with camphorated liniment, ung. acid. nitr. ung. hyd. nit. or sulphur ointment, and use the tepid bath occasionally. Sea-bathing is of great benefit.

#### § 19. SCABS FROM VERMIN.

The bloody scabs which are formed on different parts of the head, especially in the hollow near the neck, in consequence of vermin, are cured by combing and washing the hair daily, and rubbing some mercurial preparation on the scabs; whilst an ointment, composed of oil of bays and stavesacre, should be rubbed over the scalp among the hair, or the powder of stavesacre may be dusted in among the hair.

#### § 20. BOILS AND PUSTULES.

Many children are subject to boils or inflammatory pustules, which have received different names according to their size and contents. We may chiefly notice two kinds; those containing pus, and those containing a more solid substance, which suppurate very slowly. The first are properly called pustules, and they are of different sizes. They generally are attended with a considerable degree of inflammation, and end in suppuration. The small abscess bursts, and a little

scab forms, after which the inflammation dies away. Such a pustule has been called *ecthyma*, or sometimes *terminthus*. It requires in general little treatment, except the application of some soft ointment when the situation permits it. But if the pustules be numerous, as is often the case, after small-pox and other acute diseases, it will be necessary to use bark and the cold bath, especially sea-bathing; and the most painful and largest pustules may be hastened on by a poultice. The bowels are to be kept open.

The second are a kind of tubercles, called also boils, and by some are divided into the *furunculus* or acute boil, and the *phyma* which is rather more tedious. They are hard, with an extended base, are usually flat, and of a purple colour. These, like the pustules, are sometimes solitary, and often large; occasionally, though not very frequently, they are scattered in great numbers over the body. It is proper to apply a poultice of bread and milk, or of boiled turnips, until the top open, which happens sometimes by a kind of sloughing. Scarcely any matter is discharged, but a white or yellow core is found within, which is gradually thrown out, and then the boil heals like a pustule. During this process the ung. *resinosum* forms a very proper dressing, and sometimes the application of precipitate accelerates the separation.

There is a kind of small and very itchy pustules, beginning with a black spot on the skin, and containing a sebaceous fluid, which can be squeezed out in a worm-like shape. Such pustules have been called *crinones*, and were supposed to proceed from worms. They have been cured by washing with soap lotion, and applying the ung. *hyd. nit.*

#### § 21. PETECHIÆ.

*Purpura*, or *petechiæ sine febre*, is a disease not uncommon with children, particularly those who live in confined houses, or are fed on poor or improper diet. It consists of an eruption of small purple spots, which are circular, not at all elevated, seldom larger than the diameter of a coriander

seed, more frequently of the size of the head of a pin. They are scattered over the whole body, and even over the hairy scalp. They come out suddenly, without any fever or apparent indisposition, and go off slowly. They are not in general attended with foul tongue, spongy gums, or fœtid breath; and the fæces do not become unnatural, but they sometimes are so before the disease takes place, and the belly may be very tumid, but these are not essential symptoms. By good diet, the use of acids, and removal to the country, together with moderate exercise in the open air, this disease is easily removed, or sometimes it goes off without any particular change being made in the mode of treatment. I have never seen this disease affect children till after they were weaned. This eruption is sometimes intermixed with hard papulæ, forming a disease described separately, under the name of lichen lividus, by Dr. Willan. These continue for a considerable time, and end by slight exfoliation of the cuticle, but afterwards may be succeeded by a new crop. No peculiarity of treatment is required. A worse species of this disease affects children as well as adults, and attacks more slowly. For a considerable time before the spots appear, the patient is languid, and feels uneasy at the stomach. Then red spots, larger than in the former species, appear on the extremities, especially the legs, which are painful before the eruption comes out. The body is next affected, and the spots very soon become livid; sometimes vibices are also observed on the skin. This disease is attended with frequent and daily hemorrhage from the nose, mouth, alimentary canal, or vagina, and sometimes even from the toes. This species occasionally proves fatal, but it is often cured by the use of bark, wine, acids, good diet, and country air. It is, however, frequently very tedious. In worse cases, and in feeble children, the disease often begins with livid blotches on the scalp, which presently have the skin abraded; and then we may find some of them moist, and discharging blood or bloody matter; others dry, but without any scab or a cuticle; others covered with a thin black crust. Gangrenous sores form behind the ears; and

the gums, especially near the symphysis of the jaws, become foul, and covered with a brown lymph. An eruption of petechiæ then suddenly appears, and the child generally dies.

## § 22. ERYSIPELAS AND ERYTHEMA.

Erysipelas\* sometimes affects children, and even infants very soon after birth.† This disease appears to have been noticed by Avicenna, under the name of undimiam, or humid crysipelas, and afterwards at different times by other writers ; but was first accurately described by Drs. Underwood, Garthshore, and Broomfield. Dr. Underwood conceives, that it rarely makes its attack after the child is two months old, oftener a few days after birth. Dr. Broomfield, however, saw it in a child much older, and I have met with the same circumstance. It makes its attack in general quickly, and the worst kind begins about the pubis, and spreads along the belly and down the thighs. There is not a great swelling, but the parts become hard, purple, and often end in mortification ; so that the parts of generation drop off. This kind most frequently proves fatal, the peritoneum and intestines partaking of the disease. A milder kind, which I have met with much oftener, begins about the hands and feet, or not unfrequently the neck or face ; and it is worthy of observation, that this frequently ends in suppuration ; and on the neck especially, a very large collection of matter may be formed. Flour, or chalk is proper, as a local application ; or if the heat be great, a cloth wet with weak solution of acetate of lead, may be safely applied. If suppuration take place, the matter should be early let out, and the parts gently supported with a proper roller, applied over mild dressings.

\* Erysipelas is attended with fever, and the part affected is red and hot, with soft diffused swelling. The redness disappears when pressure is made with the finger, but immediately returns when that is removed. There is a tendency to the formation of vesicles, which bursting, form either scabs or troublesome ulcers.

† Dr. Underwood says, he once saw a child born of healthy parents, with sublivid inflammatory patches, and ichorous vesications, about the belly and thighs ; but by the use of bark, and especially the mother's milk it recovered.

The strength is to be preserved by means of a good nurse, and giving cordials, as for instance, white wine whey. In the worst kind, the early application of camphorated spirits of wine has been recommended with great propriety by Dr. Garthshore. Ammonia, given early in doses of from five to ten grains every three hours, has been of service; but I have derived more advantage from calomel, in such doses as to act on the bowels, than from any other medicine. Green fœtid stools are generally brought away. Bark has also been given, but the precise degree of advantage derived from this medicine in infantile diseases is not yet fully ascertained.

Erythema, according to nosologists, differs from erysipelas, in not being attended with the same diffused swelling, nor having the same tendency to form vesications; neither is it preceded or accompanied by any regular fever, though the system may be occasionally disordered during its appearance. In some cases, the inflamed part seems at first to be rough, as if covered with innumerable papulæ, but this appearance presently goes off. The treatment is nearly the same as in erysipelas. Sometimes small irregular erythematic patches, accompanied with œdematous swelling, appear about the joints, eye-lids, or different parts of children,\* with fretfulness or feverishness. They in general require only to be kept clean, by being bathed with tepid milk and water, and dusted with some cool absorbent powder, or bathed with vinegar. Calomel is of service, and should be given pretty freely.

After the cow-pox, erythematic patches sometimes appear, not only on the arm, where the inoculation was performed, but even on more distant parts. This is most apt to take place after the vesicle has arrived at the height, or is on the decline. The inflammation sometimes ends, if not in gangrene, at least in a livid state of the parts, with fatal debility. Spirituous applications are then of service. When the part

\* The erythematic patches produced by the bites of bugs, &c. in those whose skin is delicate, are distinguished by having a small mark or speck in the middle.

becomes livid, the strength must be carefully supported, and the bowels opened. In the commencement of this affection, saturnine lotions are proper, and often remove the disease. Calomel is useful. Dr. Willan describes this as a species of roseola.

There is a species of erythema, erythema nodosum of Dr. Willan, in which the patches are raised toward the centre. This elevation takes place gradually. In a few days, hard and painful tumours are formed, which threaten to suppurate, but they presently subside, soften, and end in desquamation. These are most frequent on the chin, but they may affect any part of the body. Laxatives are proper.

#### § 23. EXCORIATION BEHIND THE EARS.

Excoriations frequently take place behind the ears, especially during dentition. The skin under the lap of the ear is covered with small pustules, and the inflammation extends from one to another. Sometimes a kind of erythematic inflammation takes place without pustules, and ends in vesications, which discharge thin matter. This complaint is not generally dangerous, but it is sometimes troublesome and causes swelling of the lymphatic glands about the jaw and neck. Occasionally, however, the parts become first livid, and then gangrenous; and in such cases the child generally sinks, even although the sloughs begin to separate. In mild cases of sore ears, it is seldom necessary to do more than wash the surface frequently with milk and water, and apply a little lint spread with spermaceti ointment, mixed with the white oxyde of mercury. If the part be very itchy, and not healed by this application, it may be bathed with rose-water, containing a little tincture of opium, or weak solution of acetate of lead; but astringent lotions, or such applications as tend to heal the surface speedily, if it have been long abraded or discharging much, are, unless purges be frequently given, justly esteemed dangerous, and apt to excite disease within the cranium, especially in those who are predisposed to convulsions or hydrocephalus.

If other applications are necessary, the citrine ointment, or liniments containing acetate of lead, calyx of zinc, juice of scrophularia, cerussa, &c. have been employed.

When the parts become livid, or threaten to mortify, camphorated spirit of wine should be applied, and afterwards, when slough has formed, the fermenting poultice. The strength must be carefully supported. The bowels should be kept regular.

#### § 24. ULCERATION OF THE GUMS.

The gums, about the time of dentition, or sometimes when the first set of teeth are shedding, become spongy and ulcerated, discharging a quantity of thin fœtid matter. This at first may generally be stopped, by applying a mixture of muriatic acid and honey, in such proportions, as to taste pretty sour; or the parts may be frequently washed with equal parts of lime-water and tincture of myrrh, or with a solution of sulphate of zinc.

If neglected, the ulceration becomes either fungous, and is called scorbutic;\* or sometimes of the kind which resembles sloughing phagedena, that is, a foul fœtid spreading ulcer, destroying the gums, and in some cases the jaw-bone and cheek; so that if the child survive, no teeth are afterwards formed in that part of the jaw. Occasionally, from the very first, this disease assumes a malignant form, beginning with some degree of inflammation of the gum, generally where the incisors should appear. The part is not swelled, but bright, and of a pale red colour, and this extends along the gums a considerable way. This soon ulcerates, forming a line along the gum, marked by white or brownish slough; whilst exterior to this, the surface is inflamed, and this inflamed part next ulcerates; so that inflammation precedes ulceration, till the mouth and cheeks be affected, and a large fœtid sore formed, which soon injures the bones. This disease has

\* In this case, some have recommended stimulants and astringent lotions, others compression. M. Barthe advises the part to be cut off; and Capdeville proposes actual cautery.

been called the canker. It is attended with considerable discharge of saliva, and the breath is very foetid. Good diet, the internal use of acids, and great attention to cleanliness, at the same time that we use acid or spirituous applications locally, are the most likely means of cure.

#### § 25. EROSION OF THE CHEEK.

Another corroding disease begins in the cheek itself, or the lip. It commences with some degree of swelling, which is hard, and firm, and shining. It generally begins on the cheek, which becomes larger than the other, and the upper lip becomes rigid, swollen, and glossy. On some part of the tumefied skin, generally on the cheek, we observe presently a livid spot, which ulcerates and spreads, both laterally and downwards. Being generally seated near the mouth, it soon reaches the gums; and even the tongue partakes of this disease, which is of horrible aspect. We often find a great part of the upper or under lip destroyed, perhaps only a flap or portion of the prolabium left, all the rest being eaten away. The gums are foul, the teeth loose, the tongue thickened, partly destroyed, and lying so close on other diseased parts, that we cannot say what is tongue or what gum, except by the child moving the tongue: and the mouth itself is filled with saliva. The ulcer is foul, shows no granulations, but appears covered with a rough irregular coat of brown lymph. The surrounding parts are somewhat swelled: near the ulcer, they are hard and red; farther out on the cheek, they are paler, and have more of an œdematous look. These local appearances are accompanied with emaciation and fever, and the child is either restless, or lies moaning in a drowsy state. This disease often proves fatal; sometimes indeed, the parts cicatrize, or the patient recovers after an exfoliation of part of the jaw-bone. This ulcer is best managed with stimulants, such as diluted muriatic acid, solution of nitrate of silver, camphorated spirit of wine, tincture of opium, &c. but sometimes it is necessary to give these up for a carrot or a fermenting poultice. The bowels are to be

kept open, the strength supported by milk, soups, and wine; and acids, with ripe fruit, given liberally. Before ulceration take place, the best application is camphorated spirit of wine, or we employ friction, with camphorated liniment. A course of gentle laxatives is useful.

Another disease, destroying the parts, is called noma, which differs from the former, in destroying rather by gangrene than ulceration. It attacks chiefly the cheeks and labia pudendi of children, and begins with a livid spot without pain, heat, or swelling, or with very little; and is not preceded by fever. It ends in gangrene, which destroys the part, and the patient often dies in a few days. It is to be treated with stimulant applications, or a fermenting poultice, whilst opium and wine are given internally, with or without bark, according as the stomach will bear. A variety of this disease appears with scarcely any swelling, but the inner surface of the vulva becomes livid, and then sloughs; so that the whole of the nymphæ and the clitoris may be destroyed, and the labia seem lined with fœtid brown sloughs. This requires the same treatment. It sometimes takes place after the measles or scarlet fever, and may be conjoined with the induration of the cheek or lip, previously described. It very often proves fatal.

#### § 26. APHTHÆ.

Aphthæ are small white specks or vesicles, appearing on the tongue, inside of the cheeks, and fauces. They are extremely common, and almost every child has at one period or other an attack. This disease appears under two forms. The mild, in which the eruption on the mouth is slight, and the symptoms comparatively trifling; and the severe, in which the local disease is extensive, and the constitution greatly affected. In the first or milder form, a few scattered spots appear on the mouth, as if little bits of curds were sticking to the surface of the tongue, or within the lips. These in a short time become yellowish, and then fall off, but may be renewed for three or four times. They leave the parts

below of a red or pink colour. The child, in this complaint, is generally somewhat fretful, the mouth is warmer than usual, and the bowels rather more open, and sometimes griped, which has been attributed to an acid state of the saliva. The stools are altered in their appearance, being green, or containing undigested milk, or of an offensive smell. There is no fever or general indisposition, except what may proceed merely from irritation of the bowels. It is most frequent within the first month, but may occur later.

In the severe or worst form of this disease; a fever\* even of a contagious nature precedes, or attends the aphthæ, and the child is sometimes drowsy and oppressed for some hours, or even a day or two before the spots appear, and occasionally is affected with spasms. The fever and oppression are often mitigated on the appearance of the aphthæ. The eruption is pretty copious in the mouth, and may become confluent, so that almost the whole surface is covered with curdy-looking matter. The stomach and bowels are very much disordered, and the child vomits and purges. The stools are generally green, sour-smelled, and sometimes acrid, so that the anus is excoriated. The aphthæ may not be confined to the mouth, but may descend along the trachea, producing cough, and great difficulty of breathing; but much oftener they go along the œsophagus to the stomach, which becomes very sensible, is painful to the touch, and the child vomits speedily after sucking. The mouth is likewise tender, so that the child sucks with pain, and with difficulty, if the crusts become hard, the tongue being rigid. After a short time, the aphthæ change their colour, and begin to fall off; but they may be renewed, and the abdominal symptoms may increase, so that the child is exhausted, and dies. There are two sources of danger, in bad cases of aphthæ: the first proceeds from the disorder of the alimentary canal, which always attends the disease; and the second arises from the particular state of the system, connected with the local disease, as in malignant sore throat, and many other dis-

\* Dr. Underwood is of opinion, that fever very rarely attends aphthæ, when it appears as an original disease.

eases. It behoves us then, in forming our judgment, to attend to the sensibility of the stomach and bowels, and pay attention to the egesta. Frequent vomiting, repeated thin stools with griping, and a tender state of the abdomen, with or without tumour, are very unfavourable; drowsiness, oppressed breathing, moaning, spasms, and great languor, with frequent pulse, are likewise dangerous symptoms. With regard to the local disease, we find, that if the spots be few and distinct, and become a little yellow, and then in three or four days fall off, leaving the part below clean and moist, we may expect that the eruption will not be renewed, or will become still more mild. But if the aphthæ turn brown or black,\* which last is not a common colour, the prospect is not so good, and is worse in proportion to the rapidity with which they change. The longer that the aphthæ adhere, the more apt are they to become brown; and the case is worse, than when one crop succeeds another more speedily. If the succeeding crop be more sparing than the former, we augur well, and *vice versa*. When the aphthæ fall off, we expect their renewal, if the parts below are parched and look foul. If, however, in this state, the eruption do not take place, and the oppression, weakness, and drowsiness continue, the danger of the case is increased; and in such circumstances, it has been observed, if the eruption afterwards appear, the child is relieved. It is also unfavourable, if a new eruption come out before the former one be thrown off. When the aphthæ fall off, the mouth becomes very tender, so that the mildest fluids sometimes give pain. Occasionally a salivation takes place, and the inside of the cheek bleeds. Dr. Armstrong remarks, that he has seen the tongue covered with a crust of aphthæ, and the cheeks and gums full of angry pustules, and little fungous excrescences.

Now with regard to the causes, we find, that this disease is produced by derangement of the stomach and bowels, excited by improper diet, exposure to cold, &c. and sometimes slight attacks are occasioned by giving spoon-meat too warm.

\* Sometimes mortification takes place, and even the palate bones have been known to suffer.

The tongue and mouth sympathize very much with the state of the alimentary canal, in every period of life ; but in early infancy, the changes produced in the membranes lining the mouth, by derangement of the function of digestion, are great and sudden. Whenever the diet is deficient, or improper, or the action of the stomach is impaired, aphthæ are produced, especially during the first month ; afterwards, at least when the infant is considerably older, the tongue merely becomes foul or furred, when the digestion is injured. It is rather with the stomach than the bowels that the mouth at first sympathizes, but the bowels also are generally affected, either from a propagation of diseased action from the stomach to them, or from the operation of causes, directly on them, as well as on the stomach. Hence the stools are generally bad, when the mouth is aphthous, and hence a change of diet, or medicines, which stimulate and invigorate the whole tract of the canal, remove the affection of the mouth. If a child be brought up on the spoon, or the milk be bad, one of the most early indications of injury is the appearance of aphthæ, or white exudations on the tongue. Some particular states of the atmosphere would seem either to excite this disease, or predispose to it, for it is most frequent in damp situations, and in spring and autumn ; and Van Swieten tells us, that it is peculiarly prevalent in Holland. It would appear also to be produced by sucking an excoriated nipple ; and on the other hand, an aphthous mouth may infect the nurse. It has been said by Dr. Moss, that a healthy child, sucking a breast immediately after a diseased child, receives the infection ; and I believe it to be the case.

In the treatment of aphthæ, the cause is often overlooked, and local applications are expected to remove the disease. The first object, however, is to remove the cause, which most frequently is resident in the stomach and bowels. For this purpose, strict attention ought to be paid to the ingesta, for many nurses, instead of bringing the child up at first entirely, or almost entirely on the breast, give spoon-meat, and that in too great quantity, and not unfrequently combined with an anodyne, to keep the child quiet. Emetics have been strongly

recommended by Arneman and others, in this disease. A little of the *vinum ipecacuanhæ* may be employed, which is preferable to antimony. This may be given early in the disease, if it require interference with active medicines, or do not yield to mild laxatives; but if relief be not soon obtained, it should not be repeated. Gentle laxatives are highly proper, such as manna, cassia fistularis, or a little magnesia; indeed, Dr. Underwood seems to trust chiefly to absorbents. A small proportion of rhubarb may, together with an aromatic, be occasionally added to the magnesia. Small doses of calomel may be given with advantage. The remedy I chiefly recommend is laxatives, such as rhubarb, magnesia, or calomel, given so as to evacuate all offensive matter, and excite the action of the whole canal. The operation is to be gentle, but must perhaps be repeated for some days. Emollient clysters, made pretty large, and without stimulating ingredients, are likewise useful. Milk or soup may also be injected, to support the strength, when the child does not suck or take food by the mouth. If, however, the child have a purging, then we must proceed according to the directions which will be given respecting diarrhœa. In the worst species, we must very early give a gentle laxative, or a mild emetic, if the child be much oppressed; and afterwards the bowels must be regulated, and medicine given according to the appearance of the fæces, and the state of sensibility. Nourishment is to be given carefully, or if the child cannot suck, clysters must be administered twice a-day. Where the debility is considerable, the strength must be supported by cordials, such as white-wine posset. The bark has been recommended when the debility is great, and especially when the mouth has a sloughy gangrenous appearance, or tendency thereto. Children, however, cannot take it, so as to do good; and therefore, when it is employed, it should be in the form of clyster mixed with starch\* or mucilage, but I cannot speak decidedly as to its benefit. Small doses of calomel, with opiates, are useful.

\* From a scruple to a drachm of bark may be given to a young child, mixed with half an ounce of fluid. Sometimes a little laudanum may be added to the clyster, to make it be retained.

Local applications have been always employed, and in slight cases are trusted to by the nurse, without any internal medicine. The most common remedy is borax, in the form of a saturated solution in water, or mixed with honey or syrup; or a little of the powder may be put into the mouth, and it seems to have a better effect than could be expected from its sensible properties. It cannot, however, as Dr. Bisset observes, be expected to remove the aphthæ until they are about to separate, when it ought to be employed, and may prevent a renewal. Until this period, a little veal soup, or white of egg beat up with water, may be given. Van Swieten recommends syrup of turnips. Applications which force off the aphthæ prematurely, do harm to the part, and seem to produce a renewal of the exudation. A solution of the sulphate of zinc, or diluted muriatic acid have been proposed as lotions, and may occasionally be of service; but it is highly improper to wash the mouth roughly with a cloth dipped in these or any other lotions.

#### § 27. APHTHÆ ON THE TONSILS.

Aphthæ sometimes appear on the tonsils of children and adults, with or without fever; and from an apprehension of the existence of a malignant sore throat, give much alarm. There is, however, very little inflammation, and no lividity of the parts; the fever is very moderate, the strength not impaired, and the aphthæ do not spread, but, becoming brown, presently fall off. This is cured by acid gargles and laxatives. Another kind of sore throat is attended with the usual symptoms of inflammation, accompanied with an exudation of tough yellow mucus. It yields readily to the same treatment.

#### § 28. EXCORIATION OF TONGUE, &c.

About the time of dentition, the tongue, gums, and inside of the lips are sometimes spotted over with superficial excoriations. They are seldom larger than a coriander seed,

of an irregular shape, and covered with yellow or brownish mucus, adhering so firmly, and being so thin, as to resemble the solid base of the sore itself. They are tender, and generally accompanied with salivation. They are cured by being touched with alumen ustum, or lightly with a pencil, dipped in weak solution of nitrate of silver. Borax also, or tincture of myrrh, seem to do good. But perhaps these would always heal easily, if left to follow their own course.

#### § 29. SYPHILIS.

Infants may be affected with syphilis, in different ways. They may be diseased in utero, in consequence of the state of one or both of the parents. They may be infected by passing through the vagina, when the mother has chancres; or by sucking a woman who has the nipple affected. Of all these methods, the first is the most frequent; and it is worthy of remark, that this mode of infection may take place, when neither of the parents has at the time any venereal swelling or ulceration, and perhaps many years after a cure has been apparently effected. I do not pretend to explain here the theory of syphilis, but content myself with relating well established facts.

In such cases, it is very common for the mother to miscarry, or have a premature labour, without any evident cause; and when this takes place, the child is found to have the epidermis wrinkled, or peeled off, as if it had been macerated, and sometimes deeper ulcerations are discovered. The liquor amnii is turbid and fœtid. We are not, however, to suppose, in every instance, where these appearances are met with, that the child is syphilitic; for any cause, producing the death of the fœtus, a considerable time antecedent to its expulsion, will produce nearly the same appearance. The diagnosis then, must depend much upon the repetition of the premature labour, the circumstances attending it, the history of the parents, and the distinct appearance of ulceration. In such cases, the parent originally affected ought to undergo a mercurial course; and if the other parent have any suspicious

symptoms, mercury should be administered to both. Sometimes the disease seems to wear itself out, without any remedies being employed; and the children, born in future, are healthy. But it often happens, that the child, though it have received the venereal disease in utero, and probably possessed it as a peculiarity of constitution from the time of conception, is born alive, and has even no apparent disease on the skin, or in the mouth. Frequently, indeed, it is born before the time, and perhaps it has been preceded by one or two dead children. It may be clean and healthy, and continue so for even a month or two, but oftener it is feeble, and rather emaciated; and sometimes it has at the time of birth, or soon afterwards acquires, a wrinkled countenance, having the appearance of old age in miniature, so very remarkably, that no one who has ever seen such a child can possibly forget the look of the *petit vieillard*. In such a case, the child has scarcely any hair upon the head, but may have pretty long hairs on the body; it cries in a low murmuring tone, and appears so weak, that it cannot suck for a minute at a time. But whether the child be apparently healthy or emaciated at the time of birth, other symptoms presently appear;<sup>1</sup> and of these, the most frequent and earliest is generally an inflammation of the eyes, accompanied with ulceration of the tarsi, and purulent discharge. This appears a few days after birth. The eye presently, if neglected, becomes ulcerated, and the cornea, opaque. Copper-coloured blotches, ending in ulceration, appear on the surface; or numerous, livid, flat, suppurating pustules, cover the surface; or many clusters of livid papulæ appear, which presently have the top depressed, and then end in ulceration. These papulæ are sometimes attended by an eruption of pale shining pimples on the face, which enlarge, become red, and often run together. Children have sometimes an eruption of herpetic-looking spots which I have formerly described, and which resemble syphilis. The syphilitic blotches are of a darker colour, are more apt to end in ulceration than in scurf, or to form crusts or scabs, and seldom disappear without the use of mercury; or if they do, they soon return, and become worse

by continuance, and presently are combined with additional symptoms of the disease.

The genitals and anus<sup>2</sup> become ulcerated, and sometimes excrescences sprout out from these parts. Foul sores, having retorted edges, and a centre pale and like lard, cover the inside of the mouth; and chancreous ulceration takes place on the lips, especially about the angle of the mouth. These sores and chops are often surrounded pretty extensively with a whiteness of the skin, as if the part had been scalded, or recently rubbed with lunar caustic, and perhaps, from this circumstance, these sores have been called, though improperly, *aphthæ*. They may, however, be combined with *aphthæ*. In some cases, the white or dusky patches cover the whole palate and inside of the cheeks, whilst the gums are ulcerated, or even nearly gangrenous. The ulceration of the gums has always a very angry look. The nostrils become stuffed, and discharge purulent matter. On the face and hands we see obstinate sores covered with pus, others with crusts, whilst the intervening skin is sallow. The child is hoarse, and the glands of the neck, with those below the jaw, are swelled. Children, like adults, have in general the surface first affected, and then the mouth and throat. They seldom live long enough to have the bones diseased. They are always in great danger, and those who are much diseased never recover. Mahon, with great justice, ranks among incurable symptoms, the old decrepid visage, great destruction of the globe of the eye, chancres on the middle of the lip, spreading to the frænum, and extensive ulceration of the mouth. It must be remembered, that syphilis not only may appear under its own peculiar characters, but may also exist under the form of some of the eruptions, common to children; such as *crusta lactea*, herpes, psoriasis, &c. These are known to be venereal, by their being of a more livid colour than usual; they tend slowly to ulceration, and when the scab or crust with which they are furnished comes off, a foul honey-comb-like ulceration is observed below. But the best diagnostic is, that they are soon attended with other symptoms, such as hoarseness, ulceration of the mouth and throat, &c.

We must make up our judgment slowly, and with deliberation.

When a child is infected during delivery, the disease appears more promptly on the surface, in the form of ulcers ; and the usual train of symptoms follow, the mouth and genitals becoming presently affected. The disease generally appears within a fortnight after delivery, sometimes so early as on the fourth day.

If the child receive the infection from the nurse, we discover ulcers on her nipples, and the disease appears on the child's mouth, before the surface of the body be affected.

It has been proposed to cure this disease by giving mercury to the nurse alone, but this mode is now abandoned, mercury being given directly to the child ; and it ought to be remembered, that this medicine produces less violent effects on the bowels in children, than in adults, and scarcely ever excites a salivation. But if given too long or too liberally, it may kill the child by its irritation, or may excite convulsions. Calomel is very often employed, and with great benefit, a quarter or half a grain being given three times a-day. Others advise frictions, which are equally useful. Fifteen grains of mercurial ointment are rubbed on the thighs alternately once in two days, until the mouth be found hot, when it is intermitted or continued, according to the state of the system, and the effect on the disease ; it must be used till the disease be removed. It has been remarked, that children, apparently cured when on the breast, have had a relapse after being weaned. If the child be griped, a gentle purge, and then an opiate, will give relief. Some have used the ung. acid. nitros. in place of the mercurial ointment, but it is not to be depended on. It is, however, useful, as an auxiliary, when applied to the affected part of the surface. It often happens, that after all appearances are removed, the disease returns some weeks or months afterwards. It is, therefore, necessary to continue the medicine for some time after an apparent cure.

Sometimes, in consequence of the use of mercury, a peculiar eruption, called the *eczema mercuriale*, takes place. This

generally begins on the lower extremities, and spreads to the body. It consists of very small vesicles, which at first are like papulæ. Each vesicle may with a glass be seen to be surrounded with redness; and if they are not disturbed, they acquire the size of pins heads, and then their contents become opaque. They are attended with heat and itching, and a general tumefaction of the part affected. Presently, even if not scratched, the vesicles burst, discharging thin acrid fluid, which stiffens the linen, and sometimes excoriates the part. When the discharge ceases, the cuticle becomes of a pale brown colour, and then blacker; and separating in pretty large flakes, leaves the skin below of a bright red colour. After this, the skin comes off in scales or scurfs, perhaps two or three times. The disease ceases of itself, sometimes within ten days; often, however, it is protracted longer. Those parts which are first affected, are first cured. Relief may be obtained, by applying saturnine lotions, or weak saturnine ointment.(m)

#### § 30. SKIN-BOUND.

The disease termed skin-bound, may be divided into the acute and chronic, the last being chiefly met with in private practice. The acute species generally appears soon after birth, and proves fatal in the course of a few days. The best description of this disease is given by Dr. Underwood, and by M. Andry, as it appeared in the hospitals of London and Paris. In London, the children were seized at no regular period; but it was observed, that, whenever the disease appeared, several children were attacked within a short time, and especially those in the last stage of bowel complaints, in which the stools were of a clayey consistence, and of which the induration of the skin appeared to be only a sequel. The skin was of a yellowish white colour, like wax, and it felt hard and resisting to the touch, but not œdematous. It

(m) Vide Alley on Hydrargyria, and Mathias on the Mercurial Disease, also Spens on Erythema Mercuriale in Edin. Med. and Surg. Journal, Vol. I. and M'Mullins in same work, Vol. II.

was so fixed to the subjacent flesh, that it would not slide, nor could it be pinched up. This state was found to extend over the body, but the skin was peculiarly rigid about the face and extremities. The child was always cold, did not cry but made a moaning noise, and had constantly the appearance of dying immediately. In the French hospitals, the disease differed, in being more frequently attended with spasm, or tetanus, and always with erysipelas, especially about the pubis, which, though purple, was very cold. These erysipelatous parts rarely suppurated, but sometimes mortified. The legs were œdematous, and the children died on the third or fourth day, or at farthest, on the seventh day from birth. This disease differs, then, principally from that observed in this country, in being combined with erysipelas and tetanus, which are by no means essential symptoms; and perhaps the erysipelas of children has sometimes been mistaken for the disease called skin-bound.

In private practice, the disease appears under a more chronic, though not less dangerous form. The children affected are generally delicate; and in such cases as I have seen, the skin, from birth, was not so pliable as it generally is, being most rigid about the mouth, which had more of the orbicular shape than usual. The skin gradually becomes tight, hard, and shining, and of a colour a little inclined to yellow. In some cases, the whole skin is thus affected; in others, chiefly that about the jaws, neck, and joints. The scalp is often bald and shining, and the veins of the head peculiarly large and distinct. In some instances, parts of the skin are rough and slightly herpetic. The appetite, at first, is not greatly impaired, and the bowels are sometimes uniformly regular. Presently the child becomes dull and listless, and moans, and gradually sinks, or is carried off by fits. The complaint lasts for several weeks. In some cases, the disease is less severe, the appearance of the child being healthy, and the thickening and rigidity of the skin confined to the joints of the extremities.<sup>3</sup> No light is thrown on the nature of this complaint by dissection, which simply discovers a deficiency of oil in the cellular substance, with induration.

In the acute species, the liver has been found enlarged, and the gall bladder distended. Sometimes more children than one in the same family have been affected; and in such cases, they have been always of the same sex. A variety of remedies have been made use of, such as mercury, laxatives, baths, and emollient frictions; but seldom with any advantage. A course of calomel powders has, however, appeared to do good, when the affection is confined to the extremities. Decoction of sarsaparilla, with the frequent use of the warm bath, decoction of mezerion, and a variety of diaphoretics, might be tried; and in cases where more children than one in the same family, have been affected with the chronic species of this disease, it might be worth while to try the effects of mercury, and some other medicines, on the parents.

#### § 31. SMALL-POX.

The small-pox begins with a febrile attack, which commences generally about mid-day. It is marked by chilliness, listlessness, pain in the back and loins, drowsiness, vomiting, pain in the region of the stomach, which is increased by pressure, starting, and coldness of the extremities. As the fever advances, the pulse becomes more frequent, the skin hotter, the face flushed, the eyes tender, and the thirst considerable. The child starts, grinds his teeth, or has one or more epileptic fits, or sometimes complains of severe cramp in the legs, or lies in a kind of comatose state.<sup>4</sup> On the evening of the third, or morning of the fourth day, an eruption appears on the face, and then on the neck, from which it spreads to the body. In mild cases, the eruption is completed by the evening of the fourth, but sometimes not till the fifth day, or even later, if the pustules be very numerous; and then the fever declines, or goes off altogether. The eruption consists, at first, of small hard red pustules, of a fiery appearance. On the second day, the top is clear, and a very small vesicle is observed to be forming. On the face, we frequently find patches like measles, but containing many minute vesicles. Next day, if the eruption is to be copious, the number of pus-

tules is farther increased, especially on the face, where we often find more patches. These patches, and the succeeding confluent vesicles, seldom appear in the inoculated small-pox, or in the natural small-pox, when very distinct. They are numerous, in proportion to the tendency to the confluent form of the disease. The pustules on the body are more raised and rounder, though in some places they are flatter, and more extended. The base is surrounded with an inflamed rim; and presently, if the eruption be copious, this inflammation spreads from one pustule to another, so that all the surface appears to be red. The cuticle of the vesicle, at this time, is somewhat opaque, but its contents are limpid, like water. On the fourth day, if there be any patches on the face, they are evidently covered with flat confluent vesicles; on the body and arms, the vesicles are larger and rounder than the day before. The surrounding redness is a little paler, the skin of the vesicle is whiter, and more of the pearl appearance; so that, at the first glance, the eruption seems to consist of white elevations. The vesicles are full and smooth. On the fifth day, they are rather flatter. On the sixth day, the skin of the vesicles, on the body and extremities, is drier and harder, and the contents still limpid; all those on the body are entire, but about the chin some have broken, and crusts are formed. If there have been patches on the face, these are now covered with flat vesications. On the seventh day, the vesicles on the body and extremities are of a dead white colour at the circumference, but more glossy, like candied sugar, at the centre. Their contents are a little turbid; more crusts are formed on the face. On the eighth day, the fluid on the extremities is whitish. On the ninth day, the crusts on the face are more numerous, and they begin to be formed about the bend of the arm, &c. The pustules on the extremities are whiter, as if filled with pus, but the fluid is thin and milky; the skin of the vesicles is thick. On the tenth day, the pustules on the face are covered with scabs, and many are formed on the extremities. On the breast, the vesicles are prominent, like two-thirds of a sphere, but compressed, and have no redness around them. Many

vesicles are empty, and covered with thin brown skin. Scabs are formed, by the skin becoming dry, hard, and brown, or sloughing. The contained fluid is partly absorbed, and partly effused by exudation, so as to add a crust to the slough of the vesicle.

When the scabs are picked off, about the seventeenth day, the base of the mark is in general elevated above the rest of the skin, but the centre is depressed a little below the margin. The colour is light red. On the twentieth day, the blanes on the body and extremities are smooth, flat, or slightly scurfy, so that they somewhat resemble herpetic spots.

The process is not always regular; for, in very mild cases, the suppuration is indistinct, and the scab thin; the pustule dries without forming much matter, so that inoculators can scarcely get their lancet wet. This is a favourable condition. Sometimes the matter, though considerable in quantity, does not exude to form a scab, but is absorbed, and the vesicle remains for a time entire, forming what has been called *variola siliquosa*.

About the seventh or eighth day of the disease, when the pustules are numerous, the face swells; but about the tenth or eleventh, it subsides, and then the hands and feet swell. It is also common, about the sixth or seventh day, for the throat to become sore, with sneezing, and some degree of hoarseness or cough; and, in unfavourable cases, the secretion about the throat becomes tough and thick.

When the pustules are numerous, a return of the fever may be expected about the eleventh day. This is called the secondary fever; but in mild cases it is very trifling, and does not last long.

Such is a general history of the distinct small-pox: but the disease may also appear under a different form, known under the name of the confluent small-pox. In this case, the eruptive fever is more severe, attended with greater pain in the loins, and often with coma. It differs also from the former, which is of the inflammatory kind, in being of the typhoid type, so that sometimes petechiæ appear. The eruption

comes out earlier, generally on the morning of the third day, and is sometimes preceded by erythematic inflammation of the face or neck. The eruption is copious, and at first, more like measles than small-pox; so that some practitioners have, at this stage, mistaken the one disease for the other. The pustules, which are not so much elevated as the *variola discreta*, become confluent, especially on the face; and though they may be confluent only on the face, yet those on the body are not of a good kind. They form matter earlier, do not retain the circular form, and, instead of having the interstices of the skin, where they do not coalesce, of a red colour, as in mild small-pox, these spaces are pale and flaccid. The coalescence is most remarkable on the face, which often seems as if covered with one extensive vesicle. The matter which these pustules form is not thick and yellow, like good pus, but either of a whitish brown, or black colour. Scabs generally form about the eleventh day of the disease, but these do not fall off for a length of time, and leave deep pits. The swelling of the face is greater and more permanent than in the former species, and the eruptive fever does not go off when the eruption is completed; it only diminishes a little, till the sixth or seventh day, when it increases, and often proves fatal on the eleventh.

The treatment of the distinct is different from that of the confluent small-pox. During the eruptive fever, the antiphlogistic regimen must be carefully enjoined, the diet must be light and sparing, the surface kept cool and clean, and the bowels loose. Emetics, at an early stage of the fever, are often serviceable, and it is generally proper to give laxatives. Epileptic fits are relieved by opiates and cool air. When the eruption is coming out, the cool regimen should still be persisted in, and the bowels kept open. After the pustules have appeared, the fever generally abates; and then, although heat should be avoided, the cooling and purging plan need not be carried so far as formerly. But if the fever still continue, these means should be also continued. The diet must be sparing, and plenty of ripe fruit should be given. If se-

condary fever supervene, it is to be removed, chiefly by laxatives and cool air: or if there be oppression at the stomach, a gentle emetic may be given.

In the confluent kind, during the eruptive fever, the cold plan should be diligently employed, and cathartics are of essential benefit. When the eruption appears, the cooling regimen should still be persisted in, and both vegetable and mineral acids ought to be given freely. Bark is also proper, provided that it is not productive of sickness or vomiting. When the fever is aggravated, at the height of the disease, emetics have been sometimes given with advantage; but in general they are not necessary, and more benefit is derived from laxatives and clysters. Opiates are useful, for abating irritation; and wine, with nourishing diet, should be prudently given, to support the strength, which is apt to be completely exhausted under the constant fever and irritation. On this account also, it is necessary to restrain diarrhœa, when it is frequent, and adds to the weakness. Blisters have been advised as stimulants, but they are only useful when deep seated inflammation exists. Sometimes the brain seems to be affected, the head being pained, the eyes impatient of light, and the patient delirious. In this case, leeches may be applied to the temples, and a blister put on the head. When the lungs are affected, blisters on the sides or breast do good. When the stomach is very irritable, if saline draughts and opiates do not give relief, a small blister should be applied over the stomach. If the swelling of the face subside quickly, and be not followed by tumefaction of the feet and hands, blisters have been applied to the wrists, but sinapisms are better, though it is not decided, that either are of great utility. When the throat is much affected, and filled with viscid phlegm, gargles are of use, and sometimes a very gentle emetic gives relief.

If the eruption suddenly subside, cordials tend to bring back a salutary inflammation; or if it altogether recede, the tepid bath, with ammonia, and other internal stimulants, will be proper. The boils and inflamed pustules, succeeding vari-

ola, are very troublesome, and sometimes prove fatal. When large, suppuration should be hastened with a poultice; when small, unguentum resinosum may be applied; or if they be indolent, gentle friction, with camphorated liniment, and bathing with laudanum, is of benefit. The strength must be supported, and, as soon as possible, sea-bathing should be resorted to.

The violence of the variolous disease is generally lessened by inoculation,\* which was first introduced into this country in the year 1721. The operation itself is very simple, consisting merely in abrading the skin on the arm or leg with the point of a lancet, and then applying on the small scratch a little of the variolous matter, which should be taken early, as, when it is delayed until the pustules are collapsing or scabbing, it sometimes produces a spurious inflammation. By the third day, we are sure of success, by observing a slight redness on the arm at the incision, which resembles, from the coagulated blood, a little black speck. On the third or fourth day, the part is hard to the touch. The redness gradually increases for the two succeeding days, and then a small vesicle may be perceived. By the eighth, or at farthest the tenth day, the pustule has completely the variolous character. It forms a circular elevation, surrounded with circumscribed redness, and the vesicle is a little flatted on the top. The constitution, at this time, becomes affected; and the earlier that the eruptive fever appears, the milder in general is the disease. The character of the succeeding disease may, it is supposed, be foreseen, even before the eruption take place, or be completed, by examining the arm; and on this subject, Dr. Adams has given us some remarks, which will be found in the notes.<sup>6</sup>

The safety of the practice of inoculation is greatly increased, by having the system as free as possible from every diseased state; and, therefore, children are not inoculated during dentition, at least if they cut their teeth with any trou-

\* Inoculation, even after exposure to infection, is capable of producing a mild disease.

ble. Very young children are not considered as favourable subjects; Dr. Fordyce observing, that two-thirds of those who died from inoculated small-pox were under nine months. If we have our choice, the best age is said to be from two to four years, but it is dangerous to wait so long, lest the child should take the casual small-pox; and Dr. Adams informs us, that of three thousand children inoculated at the hospital in one year, two thousand five hundred were under two years of age, yet only two out of that number died. Full plethoric children should be frequently purged, and fed sparingly, before the operation. Some particular modes of preparation have been often employed, such as giving calomel or antimony, but these have very little effect.<sup>(n)</sup> The attention ought chiefly to be directed to bring the body into a state of good health, if previously delicate, or diseased: and, on the other hand, if requisite, diminishing plethora and inflammatory disposition by the obvious means. After the inoculation, the bowels must be kept open, and all stimulants avoided; and when the eruptive fever commences, the antiphlogistic regimen is to be strictly practised, and often has so good an effect, that few or no pustules come out; or if they do, they do not maturate, and we have no secondary fever. In general, the arm heals kindly; but when it forms a sore, it should be exposed to the air, or dusted with chalk; or if it threaten gangrene, it should be bathed with camphorated spirits, or tincture of myrrh.

#### § 32. COW-POX.

As a preventive of the small-pox, the vaccine inoculation is now universally practised. This is productive in general, of a very mild and safe disease, consisting of a single vesicle, forming on the place where the inoculation was performed. On the third day, the scratch is slightly red, and, if pressed, with the finger, feels hard. Next day, the red point is a little

(n) In so far as they operate as laxatives, their effects occasionally must be beneficial, and children are more easily induced to take them, as they are not so nauseous as some other cathartics.

increased, and somewhat radiated. On the fifth day, a small vesicle appears, but it is still more easily seen on the sixth. This gradually increases, till it acquire the size of a split pea. The colour of the vesicle is dull white, like a pearl. Its shape is circular, or slightly oval, when the inoculation has been made with a lengthened scratch, acquiring about the tenth day, a diameter equal to about the third or fourth part of an inch. Till the end of the eighth day, the surface is uneven, being depressed in the centre; but on the ninth day, it becomes flat, or sometimes rather higher at the middle than at the edges. The margins are turgid and rounded, projecting a little over at the base of the vesicle. The vesicle is not simple, but cellular, and contains a clear limpid fluid, like the purest water. On the eighth or ninth day, the vesicle is surrounded with an areola of an intense red colour, which is hard and tumid. About this time, an erythematic efflorescence sometimes takes place near the areola, and spreads gradually to a considerable part of the body. It consists of patches, slightly elevated, and is attended with febrile symptoms. On the eleventh or twelfth day, as the areola decreases, the surface of the vesicle becomes brown at the centre, and is not so clear at the margin; the cuticle gives way, and there is formed a glossy hard scab, of a reddish brown colour, which is not detached, in general, till the twentieth day. When it falls off, we find a cicatrix, about half an inch in diameter, and with as many pits as there were cells in the vesicle. During the progress of the vesicle, there is often some disorder of the constitution; and occasionally, a papulous eruption, like strophulus, appears near the vesicle.

As security against the small-pox is not procured by spurious vaccine vesicles, it becomes necessary to study carefully the character of the genuine disease, which I have briefly described. A very frequent species of spurious cow-pox, is rather a pustule than a vesicle. It increases rapidly, instead of gradually. From the second to the fifth or sixth day, it is raised toward the centre, and is placed on a hard inflamed base, surrounded with diffused redness. It contains opaque

fluid, and is usually broken by the end of the sixth day, when an irregular yellowish brown scab is formed. If the vesicle be regular in its progress, and have pretty much of the general aspect of the vaccine vesicle, but contains, on or before the ninth day, a turbid or purulent matter, it cannot be depended on; and the security will be still less, if the scab be soft. Besides these, Dr. Willan has characterized three spurious vesicles. First, A single pearl-coloured vesicle, less than the genuine kind; the top is flattened, but the margins are not rounded nor prominent. It is set on a hard red base, slightly elevated, with an areola of a dark rose-colour. The second is cellular, like the genuine vesicle, but somewhat smaller, and with a sharp angulated edge. The areola is sometimes of a pale red-colour, and very extensive. It appears on the seventh or eighth day after inoculation, and continues more or less vivid for three days; during which, the scab is completely formed. This is less regular than the genuine scab, and falls off sooner. The third is a vesicle without an areola. These forms of the disease do not give security against the small-pox; and it would appear that a vesicle, which is even regular at first, or which runs through the whole course with regularity, may fail to secure the constitution; for there are well authenticated cases, where the small-pox has thus succeeded the cow-pox. Professed writers on this subject, have enumerated three causes of failure. 1st, From matter having been taken from a spurious vesicle, or from a genuine vesicle at too late a period. The best time for taking matter is about the eighth day; and after the twelfth,<sup>(o)</sup> or when it becomes purulent,

(o) It has been satisfactorily determined by the experience of the physicians of this city, that the genuine Vaccine scab, after the usual process of separation from the arm, will, when properly used, communicate the real Vaccine disease.

This valuable fact was first brought before the medical public in the year 1802, by James Bryce, of Edinburgh, surgeon to the Vaccine Institution of that place. The student is also referred to a paper on this subject, with directions for the proper mode of using the scab, or crust, by Dr. Samuel Powel Griffiths, *Ecclectic Repertory*, Vol. I. p. 362. Dr. G. has used with success, a scab, which he had possessed for eleven months. As it appears

it cannot be depended on; or the same effect will be produced by any cause which can disturb the progress of the vesicle. 2d, From the patient being seized, soon after vaccination, with some contagious fever, such as measles, scarlatina, influenza, or typhus. 3d, From his being affected, at the time of inoculation, with some chronic cutaneous disease, such as tinea, herpes, &c. The precise circumstances under which these causes produce their effect, or the degree to which they must be present in order to operate, have not yet been determined with certainty. It has also been supposed, that puncturing the vesicle in order to take matter from it, may, by disordering the process, sometimes prevent its efficacy.

Even where none of these causes exist, and when the vesicle runs its course with distinctness, it does, though very seldom, happen, that the constitution is not rendered unsusceptible of the variolous action. It were much to be wished, that some test could be discovered, by which the security could be determined. The constitution is often manifestly disordered during some part of the vaccine progress, and such children are most probably secure; but sometimes the disorder is too slight to be discovered, and therefore this sign is

to be a matter of importance to the young practitioner to understand this subject well, we shall take the liberty of subjoining from the paper above alluded to, the most essential circumstances to be observed in the use of the scab in vaccinating.

“The most perfect vesicles which go on to the state of crust, or scab, without any deviation from the proper character, and which when they fall off are somewhat transparent, smooth, of a mahogany colour, and rather brittle than tenacious in their texture, are to be chosen to propagate the infection. It should be the first scab that falls off; this should be wrapped up in a piece of white paper, and kept in a cool dry place. When used, the margin which is of a lighter colour, should be removed with a knife, and a portion of the remaining dark, hard internal part is to be shaved off, reduced to powder on a piece of glass, and moistened with a small quantity of cold water, mixing it well together, and then introducing it in the arm on the point of a lancet, leaving also a small portion of the scab on the scratched part. No more of the scab must be moistened at one time, than what is used, and no greater portion should be shaved off from the scab, than what is wanted for the present occasion, as it appears to retain its strength better by continuing in the undetached state. It is believed that the livid vesicle and especially the unopened one is most powerful.”

not to be relied on. We are also assured, that even when no constitutional disorder has taken place, the child is secured. Other means, then, have been resorted to, in order to discover if the system be affected, so as to have a complete change induced by the inoculation. These are two in number: 1st, If a second inoculation be performed on the fifth or sixth day after the first, a vesicle will arise as usual, but it will be surrounded with an areola nearly as early as the first one. 2d, If a second inoculation be performed any time after the twelfth day after the first inoculation, some degree of inflammation will be induced; but if the system have been affected, no regular vesicle will be produced. But the most satisfactory method is, to inoculate with small-pox matter, which produces most frequently a small pustule, generally totally unattended with constitutional affection; but sometimes, even although the constitution have been changed by the vaccine inoculation, a slight febrile affection may be excited, either without any secondary pustules, or attended by an efflorescence on the skin, or an eruption of small hard pustules, which disappear in about three days. It unfortunately happens, however, that parents in general do not think it necessary to adopt any of these means; and inoculators, perhaps, trust too much to their own power of discrimination, in determining how far a vesicle is capable of producing the desired effect. Some test is the more requisite, as vaccination is often performed in a very careless manner, and by people ignorant of the character of the disease.

It has been said, that if a child, properly vaccinated, should afterwards take the small-pox, the pustules are papulous, or tuberculated, and do not suppurate, but end in desquamation. I have, however, seen a very distinct case of suppurating small-pox, in a girl who, some years before, had gone through the vaccine process in the most satisfactory manner; of which I am certain, having attended her on both occasions. In a considerable number of instances, I have found variolous inoculation produce some degree of fever, followed by papulous eruption, and pretty universal efflorescence like measles. The variola occurring after vaccination is contagious, producing

the unmodified disease in other children. I do not, from these remarks, mean to depreciate the cow-pox; on the contrary, it is only by ascertaining the precise power of vaccination, that its full benefit can be derived to mankind: and although the warmest friends of this discovery must admit, that it is not always successful, yet it has hitherto failed in so few instances, that we must consider it as justifiable to rely upon it, and adopt it, in preference to the variolous inoculation. (*p*) Experiments have been made to ascertain the effects of inoculation with a mixture of variolous and vaccine matter; and the result has been, that sometimes the cow-pox, sometimes the small-pox, have been thus produced. When a person is inoculated with variolous and vaccine matter at the same time, the incisions being very near each other, the vesicles enlarging, join into one; and matter, taken from the one side, will produce cow-pox, from the other small-pox. When a person is inoculated with the two kinds of matter at the same time, or within a week of each other, both diseases will be communicated to the patient, whether the incisions be near or remote, and small-pox pustules will be produced on the body; but they seldom mature, and the disease is generally mild. When, however, the variolous inoculation is performed more than a week, as, for instance, nine days before vaccination, the vaccine pustule becomes purulent, and sometimes communicates the small-pox even in a very bad form. When, on the other hand, variolous matter is introduced nine days after vaccination, its action is altogether prevented. From

(*p*) Numerous cases have of late years been undeniably adduced, of the variolous virus producing its full effects twice in the same system, so that a similar objection will apply to variolous inoculation as to vaccination, as it regards the after security of the patient. It might perhaps be considered as superfluous to refer to particular instances in proof of this position; but the curious reader may find a very interesting case of this kind, related by E. Withers, surgeon, in the *Memoirs of the Medical Society of London*, Vol. IV. The patient's face was severely pitted with the first attack, and he died nearly 50 years afterwards in consequence of the second. See also a case of secondary small-pox, with references to some cases of a similar nature, by T. Bateman, M.D. F.L.S. Physician to the public Dispensary, and to the Fever Institution. *Medico-Chirurgical Transactions*, Vol. II. p. 31. and seq.

these observations, it follows, as an important conclusion, that when a child has been exposed to small-pox contagion, vaccination, though it may not prevent, will yet generally mitigate the subsequent disease.

It only remains to take notice of two objections to vaccination. The first is, that it is apt to be followed by a very sore arm. This, however, applies in a greater degree to small-pox; and in general, the vaccine sore heals, by being dusted with chalk or hair powder; and even when tedious, seldom requires any other application. The second is, that it is followed by cutaneous diseases. But these occur seldom, than when the variolous inoculation was performed; for then inflamed pustules and boils, with herpetic and impetiginous eruptions, frequently succeeded the disease. Doubtless, children, after vaccination, may have crusta lactea, herpes, &c. but it does not thence follow, that these are the consequences of inoculation; and it is not unworthy of remark, that no new cutaneous disease has been produced by the introduction of the cow-pox.(q)

(q) The following note is extracted from the Eclectic Repertory for July 1813. The interesting nature of the information it contains, it is presumed, precludes the necessity of apologizing for introducing it here.

“The following important statement, from the annual official Reports of the Board of Health of Philadelphia, with the accounts of persons vaccinated by the society for promoting vaccination, must be peculiarly interesting and conclusive in respect to the benefits of this invaluable discovery. By the Reports of the Board of Health, it appears, that there have died of inoculated and natural small-pox, in the city of Philadelphia and its neighbourhood,

In 1807	32 persons.
1808	145
1809	101
1810	140
1811	117
1812	Nonc.
In 1809	1102
1810	955
1811	1277
1812	1255
	—
Total	4589

Persons were successfully vaccinated by the Physicians of the Society for promoting vaccination in the city and neighbourhood of Philadelphia.

## § 33. CHICKEN-POX.

The chicken-pox is a disease, sometimes mistaken for small-pox; and at one time, and by some authors, described along with it. It is preceded by eruptive fever, which continues for three days, and is marked by languor, loss of appetite, thirst, furred tongue, pain in the head, back, and limbs, sometimes pain in the epigastric region, with nausea and vomiting. The pulse is quick, the face occasionally flushed, and cough and hoarseness may attend the disease. Convulsions also, in some cases, occur during the fever, or the child has tremours when asleep, accompanied with terrifying dreams, or he is slightly delirious. The eruptive fever does not always go off when the eruption appears, but may continue even till the third day of the eruption. In general, however, the symptoms are mild, and sometimes exceedingly trifling. The eruption commences on the back, or breast, and next appears on the face and head, which is not the order observed by the variolous eruption. Last of all, it appears on the extremities. The pustules very soon contain lymph, and by the fifth day are covered with scabs or crusts, which is earlier than happens in the variolæ. These drop off sooner than in small-pox, and very seldom leave any cicatrix. The eruption is attended with very considerable itching, in consequence of which the pustules are soon broken. The pustules are seldom or never confluent, and Dr. Heberden never could count more than twelve upon the face, but we sometimes meet with many more.

In varicella, almost every vesicle, on the first day, has a hard inflamed margin. On the second or third, they are full of serum at the top; and those which are fullest of the yellow liquor, resemble small-pox pustules of the fifth or sixth day. On the third or fourth day, the shrivelled and wrinkled state of the vesicles which remain entire, give a different appearance from the variolæ; and on the fifth day, the presence of scab assists the diagnosis. It is proper, however, to add, that in some cases, I have found the pustules longer than usual of running their course, and the disease altogether,

so like small-pox, that I would have been at a loss to decide on the nature of the disease, had not the rest of the children in the family had the chicken-pox at the same time in the usual form.

Such is the general description of this disease; but it consists of some varieties, which have very properly been separately described by Dr. Willan, whose distinctions I shall retain. 1st, The lenticular. The eruption consists, on the first day, of small red protuberances, not exactly circular, with a flat shining surface, in the middle of which, a minute vesicle is soon formed. These on the second day, resemble miliary vesicles, are about the tenth part of an inch in diameter, and are filled with whitish lymph. On the third day, the extent is the same, but the fluid is straw-coloured. Next day, many of the vesicles are broken; and those which are not, have shrunk, and are puckered at their margin. Few are entire on the fifth day. On the sixth day, small thin brown scabs appear universally, in place of the vesicles. On the seventh and eighth days, these turn yellow and dry, from the circumference toward the centre; and on the ninth or tenth day, drop off, leaving red marks without pitting. 2d. The conoidal. The vesicles rise suddenly, and have a hard inflamed border. On the first day, they are acuminate, and contain a bright transparent lymph. Next day, they are more turgid, the lymph is straw-coloured, and they are surrounded with more extensive inflammation. On the third day, the vesicles have shrivelled, have inflammation round them; if entire, contain purulent matter, if they have burst, they are covered with slight gummy scabs. The scabs fall off in from four to five days, and often leave durable pits. A fresh crop of pustules come out on the second or third day, and runs the same course with the first; so that the eruptive stage in this species is six days, and the last formed scabs are not separated till the eleventh or twelfth day. 3d. The swine or bleb-pox. The vesicles are large and globated, but the base is not exactly circular. They are surrounded with inflammation, and contain transparent lymph, which on the second day resembles whey. On the third day, they subside and

shrivel, and appear yellowish, the fluid being mixed with a little pus. Before the end of the fourth day, they are covered with thin blackish scabs, which fall off in four or five days.

The chicken-pox is a very mild disease, and requires no other management than keeping the bowels open, and the surface moderately cool. The skin may be sponged with cold water, which diminishes the heat, and lessens the number of pustules, if done, during the eruptive fever; at a later period, it abates the itching. I have, especially in scrofulous children, observed, that if the bowels were neglected by the parents, and the diet was full and heavy, the pustules became much inflamed, and ended in sloughs, which left large and permanent cicatrices; and in some cases, boils and abscesses have occurred from the same cause.

#### § 34. URTICARIA.

Urticaria, or nettle rash, may appear either as an acute or chronic disease.\* The first is most frequent with infants and children. It is preceded by languor, sickness, and fever, on the third day of which, but sometimes earlier, an itchy eruption appears, bearing a very exact resemblance to that produced by the stinging of nettles. It consists of irregular patches, slightly elevated above the surface. These are of a dull white colour at the centre, and red toward the margins, which are sometimes hard and well defined. The size and shape of the patches are very various. Generally they are about the size of a penny-piece, but sometimes form pretty long stripes. This eruption is, in some cases, attended by a slight turgescence of the skin, but especially of the face and eye-lids. The patches do not remain constantly out, but appear and disappear irregularly during the disease, which lasts for seven or eight days, including the period of the eruptive fever. When the eruption declines, the languor, stomachic symptoms, and feverishness, go off. The disease

\* Dr. Willan notices five different species of this disease; but for the present purpose, this simple division is sufficient.

terminates by slight exfoliation of the skin. In infancy and childhood, it is often dependent on dentition, or affections of the bowels; and from the itching which attends it, great distress is produced. The febrile urticaria is not infectious, but in certain seasons it is very prevalent; and the same holds true with regard to the chronic species. Chronic urticaria is more rare in infancy. It differs from the former, chiefly in being destitute of fever, and vexing the patient at intervals for a length of time; sometimes even for years. The patches seldom continue out, however, for above a few hours at a time. They are, like the former, reproduced readily by exposure to cold, and are also particularly troublesome after undressing to go to bed. A temporary eruption of this kind, without fever, is often consequent to eating particular kinds of fish, or substances which disagree with the stomach. An eruption somewhat resembling urticaria, is described by Dr. Willan, under the name of *roseola annulata*; it differs in size, and some other circumstances, whilst it agrees in others. It consists of circular patches, about half an inch in diameter, the margins rose-coloured, the centre of the usual colour of the skin. These cover the body, and produce, especially at night, a sensation of heat and itching. When unattended with fever, the eruption fades in the morning, and becomes round and elevated at night. The use of acids, and sea-bathing will be of service.

A gentle emetic, followed by one or two purges, gives relief in acute urticaria. The child should, if possible, be kept from scratching, so as to tear the skin; and this will be the easier done, if he be preserved in an uniform temperature. The tepid bath sometimes gives relief. The chronic species is more obstinate, and in consequence of the abrasion of the skin, from frequent scratching, it has sometimes been treated as itch, but without advantage. The bowels are to be kept open by cream of tartar, and some tonic medicine should be administered. The tepid bath daily will also be proper, but sometimes, sea-bathing continued for some months succeeds better. Mercurials have been tried with very little good effect.

## § 35. SCARLATINA.

Scarlatina may appear under two different forms. In the first, it is accompanied with inflammatory fever, and is generally mild; in the second, it is connected with a typhoid fever, and is very malignant. The first species admits of a farther subdivision, according to the degree of mildness; one variety being attended with slough or ulceration of the throat; another still milder, with little or no affection of the fauces. This has by some been called *scarlatina simplex*, to distinguish it from the first, or *scarlatina anginosa*.

The *scarlatina simplex* begins with a febrile attack, attended with considerable debility, chilliness, nausea, and pain in the belly and about the loins and extremities. It generally attacks very suddenly in the afternoon or evening, the patient having been, not an hour before, lively, and apparently in good health. The pulse is extremely rapid, being often 140 in the minute; the trunk is very warm, and the feet cold; the respiration frequent, irregular, and sometimes sonorous; the eye sunk, and the eye-lids turgid and red on the inside. Sometimes, but not often, convulsions occur early, and are to be considered as unfavourable. On the next day, if not earlier, an eruption appears, first on the face and neck, and very soon, always within twenty-four hours, it is diffused over the whole body. It consists of numerous minute specks, so closely set together, that the skin appears altogether of a red colour, like a boiled lobster, and it feels rough. Broad patches also appear on those parts which are most exposed to heat or pressure. The inside of the eye-lids, nostrils, cheeks, and fauces, are of a deep red colour, and the tongue participates in the appearance. The eruption is most vivid at night, and especially on the evening of the third or fourth day. On the fifth day it declines, and is wholly gone by the seventh, when desquamation takes place. During the eruptive stage, the patient is generally either restless, or very drowsy, often slightly delirious, and both during this stage, and the process of desquamation, complains much of itchiness. Whilst the fever lasts, the skin is extremely hot. The contagion, in ge-

neral, operates on the third or fourth day after the person has been exposed to it.

The scarlatina anginosa is attended with more severe symptoms. It commences with the usual symptoms of fever; and in general, whenever these appear, or even before the fever commence, the throat will be found, on inspection, to be affected; but sometimes the cynanche does not take place till the eruption come out, which is nearly about the same period as in the former species. Dr. Sims says, that the first marks of disease are paleness and dejection of countenance, and that at this time the fauces will be found to be red. I am very much inclined to adopt the same opinion. From the first, there is a sensation of stiffness about the muscles of the jaw and neck, and very soon, generally on the second day, the throat feels as if straitened, the voice becoming hoarse, and sometimes a croupy cough takes place. In this case, the breathing often becomes sonorous, or even so obstructed that the child is suffocated, as in cynanche trachealis. In very many cases, deglutition is performed with difficulty, and sometimes the drink returns by the nose. On examining the mouth we find at the first, that the tongue has a very red colour, and its papillæ are evidently elongated. In the progress of the disease, it is often covered with a fur. The tonsils are early observed to be of a deep red colour, and very soon whitish streaks may be discovered. Superficial ulceration is frequent on the second or third days, and the parts become covered with a white or ash-coloured substance, or slough, whilst the rest of the tonsil becomes of a dark red colour. The sloughs are sometimes not removed for a week or more, but often are detached on the fifth or sixth day, when the cuticular eruption declines. The eruption, in this variety, is the same in appearance and duration as in the former. When it is slight, or disappears suddenly, it has been said that the event is hazardous, but this is not always the case. The fever is attended often with great nausea, bilious vomiting, restlessness, head-ache, and delirium. The heat is excessive, the pulse feeble, and sometimes fluttering, always very rapid. The languor and inquietude are great,

especially when the sloughs are forming. About a week or ten days after the eruption fades, anasarcons swelling of the legs may take place, and continue even for two or three weeks. Sometimes other parts of the body swell, or the patient has ascites.

Scarlatina is sometimes succeeded by pain in the ear, followed by temporary deafness, and the discharge of foetid serous fluid. This often abates, upon syringing the ear with decoction of chamomile for a few days; but it may be more obstinate, and the child remain permanently deaf. The tonsils occasionally suppurate, after the external disease abates. Swelling of the parotid gland is not uncommon; and it is said by various authors, when it is late of appearing, to protract or renew the symptoms, even the eruption itself; but this I have not witnessed. Sometimes the glands of the neck swell and suppurate, or the bones of the nose, after obstinate ulceration, become carious. I have seen some unfortunate cases, where the lips have sloughed completely away, and these ended fatally. Even after the patient has, to all appearance, recovered from scarlatina, there sometimes unexpectedly supervene languor, debility, and pain of the bowels, frequent pulse and loss of appetite, which symptoms terminate in dropsy. Bronchitis or pneumonic affections may also be produced. In some cases, the patient becomes languid without fever or dropsy, but these generally do well.

In the second species, or scarlatina maligna, the pulse is very small and feeble, sometimes indistinct. The debility is very great, the patient fainting on making the smallest exertion, and very generally he is unable to sit up in bed. In the scarlatina benigna, the tongue is red, the eyes and eyelids red, the throat at first red, and the skin like a boiled lobster; but in this species, the tongue is livid, tender, and soon covered, together with the teeth and lips, with a brown or black crust, the eyes are dull, and the inside of the eyelids dark coloured, the cheeks are livid, the throat of a dark red colour, with brown or blackish sloughs; there is foetid breath, with acrid discharge from the nostrils. The inside of the labia pudendi of girls, and of the prepuce of boys, has

in scarlatina the same colour with the inside of the cheeks and lips, in the scarlatina maligna, the vulva and lips are of a dark colour, and sometimes mortify. The eruption is sometimes faint, in other cases very dark and purple-coloured, and often appears and disappears irregularly. In the progress of this disease, delirium, great fretfulness, or coma may come on. The breathing is rattling, the neck seems to be full, and of a livid colour, and the head is bent back. This disease sometimes proves fatal in a few hours. It is not, however, always alike mortal, for there are several smaller degrees of malignity, forming a gradation betwixt this and the scarlatina anginosa.

The first species, when properly managed, is not very dangerous, but the last is attended with great hazard. The prognosis must be made, by attending to the symptoms of debility, the progress of the affection of the throat, the tendency to inflammation of the trachea, and the general character of the epidemic.

Drs. Withering, Adams, and Willan, believe, that the scarlatina does not attack the same person twice, though the throat may be to a certain degree repeatedly affected. Although I have had many opportunities of attending to this disease, I cannot form a decided opinion on this important point; but I am inclined to adopt the same conclusion. Aphthous affections of the throat, and exudation of lymph from inflammation, are often considered as belonging to scarlet fever, though the eruption be absent, but the conclusion is incorrect. Those who are exposed to the contagion of scarlatina, may have sloughs in the throat, attended with considerable debility, but a regular repetition of the scarlet fever is certainly not a frequent occurrence. Sometimes other eruptive diseases, such as a roseola infantilis have been taken for it.

The scarlatina simplex and anginosa, are often so mild diseases, as to require little medicine, but still great attention is necessary. When there is a considerable appearance of inflammation, venesection has been recommended; but this is very seldom necessary, often hurtful, and may almost

uniformly be superseded by other means. Emetics, given early, are often attended with advantage, and render the subsequent disease milder. But laxatives are still more useful, and in mild cases are the only medicines which are required. In some epidemics, the bowels are moved with greater difficulty than in others, and in those cases the laxative must be stronger. Even when there is a tendency to diarrhœa, if the stools be fœtid and unnatural in their appearance, purgatives are equally necessary as in the opposite state. The best medicine to be given at first, is calomel in a brisk dose, which often, even at the commencement of the disease, brings away fœtid stools. This medicine cannot be used too early; and if an emetic have been given, calomel ought rapidly to succeed it. After the operation of the first dose of calomel, the bowels must be kept open, or even rather loose, by the daily use of infusion of senna with an aromatic. This is better than repeated small doses of calomel, which often affect the mouth considerably. But if the stools be very fœtid, the patient oppressed, and the belly full, a brisk purgative may be given oftener than once in the course of the disease. Another remedy of great importance, is affusion with cold water. From careful observation, and repeated trials, I can with confidence recommend this remedy, which by no means prevents the exhibition of purgatives at the same time. It is of consequence to use this early, and whenever the patient feels steadily hot, the shivering having gone off, and the skin feels very warm to the hand of another person, it is time to put the patient into an empty tub and dash over him a large pail-full of cold water. By this I have known the disease arrested at once, the eruption never becoming vivid, and the strength and appetite in a few hours returning. Even where it is not arrested, it is pleasant to observe the change it produces. The patient, from being dull, languid, and listless, feels brisk, and disposed to talk or laugh; the skin becomes for a time colder, and refreshing sleep is frequently procured. The repetition must depend on the degree of heat; one application is sometimes sufficient, but it often is necessary the first day to use it three times, and next day once in the morn-

ing, and again in the evening. It is seldom requisite afterwards; for although the disease may continue, it is mild, and laxatives complete the cure. If the affusion be not employed, we ought to have the surface cooled frequently with a sponge dipped in cold water. Even an advanced state of the disease, if the bath have not been previously employed, and the skin is hot, does not preclude its use, though at this period, it is generally better to employ the sponge. On the contrary, it revives the patient. These two remedies do not only mitigate the disease, but lessen the risk of dropsical swelling taking place afterwards.\* Gargles are often useful, when they can be employed. Water, acidulated pretty sharply with muriatic acid, or mixed with capsicum vinegar, forms a very good gargle. Acid fruits are proper. The diet should be light and nourishing. In mild cases, it is not necessary to give wine; but if the debility be considerable, small doses of wine may, toward the end of the disease, be administered. Should anasarca take place, laxatives and diuretics, such as digitalis, are proper.

The scarlatina maligna is much more dangerous, and requires the most vigorous practice. The early use of cold water is highly proper, and often gives a favourable turn to the future disease. Laxatives are likewise necessary, and so far from weakening the patient, if prudently administered, seem to increase the strength. Wine should be given, in such doses as do not flush the patient, or make him hotter. Ammonia is sometimes of benefit. Two drachms should be dissolved in six ounces of water, and the solution sweetened with sugar. To infants, two tea-spoonfuls, and to elder children, from a desert to a table-spoonful of this solution, may be given every two hours, or oftener if possible. An infusion of capsicum in vinegar is also employed with advantage; so much of it is to be added to a given quantity of

\* Dr. Hieglitz recommends in scarlatina, first, an emetic of ipecacuanha, and then so much Epsom salts as shall procure four stools. In bad cases, he gives four grains of calomel daily, or rubs in  $\frac{3}{4}$ ss of ung. hyd. Whenever the salivary glands become affected, the disease, he says, takes a turn.

water, as renders it pungent. This mixture may be given in the same doses as the solution of ammonia, and it both acts as a general stimulant and as a local application to the throat. Bark has certainly, in many cases, been of service; but in general, children do not take it in such doses as to do much good; or they loath it or reject it by vomiting. Even when taken freely, I do not think that it is a medicine that can be depended on, in the cynanche maligna of children. When it is prescribed, it ought to be combined with ammonia or capsicum. But in general it is better to give it in clysters made of beef-tea without salt. Myrrh has also been given, combined with vinegar; but of the effect of this, I cannot speak from my own observation. Oxygenated muriatic acid in doses of twelve drops to children, has been employed; but I question if it produce better effects than water acidulated with sulphuric acid, which, if the ammonia be not employed, makes a very proper drink. If the patient at an advanced period, be restless, and the skin dry and rough, ablution with tepid water will be useful. As gargles, capsicum vinegar with water, or muriatic or nitrous acid with honey and water, may be employed; but as children often cannot, or will not use gargles, it may be useful to throw these on the tonsils with a syringe. It is also proper to touch the sloughs and tonsils frequently, with a pencil dipped in the tincture of myrrh or camphorated spirit of wine. Fumigations, made by pouring sulphuric acid on nitre, placed in a vessel in the bed-room, have also a good effect on the throat. When the sloughs are large, or the child breathes with difficulty, or has a croupy cough, a gentle emetic of ipecacuanha sometimes does good, and ought to be tried. It is to be followed, if the child be a year old, by two grains of calomel every hour, till stools are procured. If less than a year, one grain may be given at a time. Blisters have also been applied to the throat, but I really cannot say decidedly, that they do good, and they add greatly to the irritation of the child. In bad cases, there is risk of their being followed by mortification of the part. Sometimes, in the course of this disease, apoplexy succeeded by hemiplegia, and inability to articulate

distinctly, takes place. Blisters should be applied to the head, and if the patient survive, the paralytic symptoms go off in a few weeks.

During the course of the disease, the strength must be supported by nourishment, or if that cannot be swallowed, by nutritive clysters.

When a disease of this kind appears in a family, the children who are unaffected, ought, if possible, to be sent away, and should not return for a month. In the meantime, the clothes should be washed, and the apartment well ventilated, and fumigated with the vapour of oxygenated muriatic acid. This fumigation may be employed, even during this disease, for the destruction of the contagion, and of the smelling matter in the room.

#### § 36. MEASLES.

Measles commence with a distinct eruptive fever; on the first and second days of which, the patient complains of irregular shiverings, alternating with heat, general debility, languor, loss of appetite; has white tongue, thirst, pain in the back and limbs, slight sore throat, hoarseness, with dry cough and sneezing, weight and pain across the forehead, giddiness, drowsiness, frequent and irregular pulse, costiveness, and high-coloured urine. On the third or fourth day, the symptoms become more severe; the eyes are tender, watery, and appear as if inflamed, the eye-lids are often swelled, the nostrils discharge thin serum, and the patient sneezes more frequently. There is now often some degree of dyspnœa, and sometimes pain and tightness in the chest. These febrile symptoms usually come on distinctly, about twelve or fourteen days after exposure to infection; but I have known children seized more gradually, being teased with hard cough, and rendered more irritable and fretful for many days before the eruptive fever commenced. The eruption appears betwixt the third and sixth day of the fever, but most frequently on the fourth and it remains for about three days. It is first visible on the forehead, then on the

throat, then on the face. Next day it appears on the breast, and by the evening it covers the trunk and extremities. The eruption consists at first of small red spots, apparently a little raised, like papulæ, but without vesicular tops. Then the spots extend so far as to form an oval or irregular figure, slightly elevated, but flat, resembling a flea bite. Very soon large patches appear, intermixed with the distinct spots. These are irregular in shape, but tend to the semilunar figure; they are made up of clusters of distinct spots. In some cases, the eruption, though vivid, is not considerable; and in this case, it consists almost equally of patches and circular and irregular spots, and the intervening skin is of the natural appearance. When the eruption is more copious, the patches are most numerous and extensive. In children under a year old, the eruption is not so thick and confluent as in older subjects, and in many places has a papulous appearance, especially on the face and hands. In some cases, the eruption, though of the usual configuration, is pale and indistinct; but in general, whether vivid or not, when the finger is passed over the surface, the skin feels unequal, from the elevation of the spots and patches. The colour is most vivid after the eruption has been out for a day. Sometimes the eruption suddenly and prematurely recedes, or never comes fully out. Both of these cases are unfavourable, the fever is high, and the oppression great. In the regular course of things, the eruption on the face fades a little on the sixth day, and next day that on the body becomes also paler.\* From this to the ninth day, the eruption is going off, and then the former situation of the rash is only marked by a slight discolouration. The departure of the efflorescence is attended with desquamation, during which the patient complains much of itchiness. The fauces in this disease, about the fourth day, are covered with small red patches, which next day have a scattered or streaked appearance. The inflam-

\* Sometimes, instead of this, the eruption becomes very dark-coloured, or purple, with increase of the languor and fever. Mineral acids in this state are useful, and most children recover. The danger is greater when petechiæ appear among the patches, for this marks great debility.

mation of the eyes, sneezing, and hoarseness, generally decline with the eruption, and, towards the end, epistaxis sometimes takes place. The fever continues during the eruption, but the sickness and nausea abate when the eruption comes out, and about the sixth day the heat and restlessness go off. A spontaneous diarrhœa often terminates the fever, and then the appetite returns pretty keenly. Sometimes, especially if the disease have been severe, the measles are followed either by an eruption of inflamed pustules\* over the body, which may ulcerate, and prove troublesome, but more frequently they fade, or by a vesicular herpetic-looking eruption about the mouth, or sometimes by gangrenous affections of the lips or vulva,† or by enlargement of the glands of the neck, or dropsy, or a cough, somewhat resembling that in hooping-cough, or by hectic fever, continuing for many weeks.

Sometimes the sickness and oppression are great and permanent. The child never looks up, but breathes heavily, and, owing to stuffing of the nostrils, loudly. He coughs often, has frequent pulse and hot skin. He can scarcely be roused up, even to take a drink. This state arises more from the brain than the lungs.

In measles, the membranes are very apt to be affected. Generally, the membranes of the windpipe, bronchiæ, fauces, nostrils, and eye-lids, are chiefly affected, but sometimes that of the stomach or bowels principally suffers, producing sickness, vomiting, or purging. At other times that of the brain is affected, producing coma.

Rubeola, in general, is not a fatal disease, when stimulants are avoided. When it proves fatal, it is most frequently in

\* These are sometimes taken for a kind of small-pox. They are occasionally succeeded by a scabby disease of the skin. The skin is inflamed and covered with rough loose yellow scabs.

† The measles, about nine years ago, were more prevalent than any practitioner I have met with, remembers them to have ever been before. They began about the middle of winter, and continued during the summer and autumn. I have had occasion, during the epidemic, to see different instances of the gangrenous affection I have mentioned. The children all belonged to the poor, and lived in confined houses.

consequence of the pulmonic affection, sometimes of coma, or fever and oppression, with symptoms of effusion in the brain, connected with recession, or imperfect appearance of the eruption.

The treatment is extremely simple, and may be briefly explained. During the eruptive fever, the use of mild diaphoretics, and the tepid bath, will be of advantage. The bowels should be kept open, but the child should not be much purged after the first day. If there be a considerable diarrhœa from extraneous causes, as dentition, or directly connected with the fever, it is often found that the eruption is late of appearing, and a late eruption is generally attended with some troublesome symptoms, as it indicates a tendency to affection of some internal membrane. A little rhubarb, given early, often moderates this.

If the eruption do not come freely out, or recede prematurely, and the child be sick, oppressed, and breathe high, we must attend first of all to the bowels. If diarrhœa exist, and the child be not plethoric, a little rhubarb should be given, and then spiritus ammoniæ aromaticus with laudanum, and the child should be put in a warm bath, having a little mustard diffused in it; afterwards a sinapism, followed by a warm plaster should be applied over the stomach, and we determine to the surface by giving a saline julap. If in this state the child be costive, a gentle purgative should be given, for the bowels may be either too torpid or too irritable.

I have not advised the liberal use of purgative medicines, though these are found beneficial in scarlatina, because we often find that diarrhœa interferes with the eruption. But the bowels are upon a general principle to be kept regular, or rather open; and if the stools be fœtid or ill-coloured, then, even although diarrhœa exist, small doses of calomel should be given, and afterwards, if necessary, the purging is to be moderated by anodyne clysters. So far as I have observed, the continuance of the diarrhœa, in this case, does not mitigate the symptoms; and if the child recover, it is either by the use of medicines bringing the bowels into a

better action, or it is independent of the mere evacuation produced by the diarrhœa.

If the pneumonic symptoms be considerable, marked by cough, oppressed breathing, flushed cheeks, and pain in the chest, which, in young children, may be discovered by the effect of coughing, and if a slight motion excite coughing, a blister should be applied to the breast, and if the symptoms are urgent, either the lancet must be early used, or leeches may be applied at the top of the sternum, according to the age and constitution of the child, and moderate doses of calomel given to keep the bowels open. If the cough be frequent, without inflammatory symptoms, opiates give great relief. If the symptoms of inflammation be such as to require bleeding, or to render the propriety of using laudanum doubtful, then small doses of solution of tartarite of antimony may be given every two hours, but not to such extent as to produce sickness or vomiting. Diarrhœa should not be checked, unless severe, and it increase debility, or produce hurtful effects. Anodyne clysters are then the best remedies.

Coma or drowsiness very frequently attend the measles, and the child may perhaps scarcely look up for some days. When the nostrils are stuffed with mucus, the breathing, in this case, has an alarming appearance of stertor. Most children recover from this state; but as some die evidently from this cause, and as we have no means of ascertaining the security of any individual, I hold it expedient to use means for the removal of the coma, particularly by giving a purge, if the child have not a looseness, and shaving the head, and afterwards applying either a sinapism or a blister. When the child is plethoric, it may also be proper to apply leeches to the forehead.

The cough which remains after measles, is generally relieved by opiates. Hectic fever is often removed, by keeping the bowels open, giving an anodyne at bed-time, carrying the child to the country, and adhering to a light diet. Other symptoms are to be treated on general principles.

When the measles are epidemic, it is not uncommon to find those who had formerly the disease, affected sometimes with

catarrh\* without any eruption, sometimes with an eruption preceded by little or no fever, and without any catarrh. This has been very distinctly observed, during every season when the measles were prevalent. Whether the eruption be of the nature of measles, is not easily determined, but certainly the external resemblance is very great, in so much that this eruption has been called *rubeola sine catarrho*. It requires no particular treatment, and is only noticed because it is sometimes taken for measles, but does not prevent the patient from a second attack.†

### § 37. ROSEOLA.

Sometimes an eruption, termed by Dr. Willan *roseola*,‡ is taken for measles. The first species, *roseola æstiva*, has no small resemblance to *rubeola*. It is often preceded by chilliness, alternating with flushes of heat, languor, faintness, restlessness, occasionally with delirium or convulsions. At some period, betwixt the third and seventh day from the commencement of these symptoms, the rash appears, generally on the face and neck, and afterwards in a day or two over

\* During the epidemic six years ago, ophthalmia was extremely prevalent amongst both young and old.

† Of all the eruptive diseases the measles are undoubtedly the most inflammatory. They therefore require to be treated by depletion. Bleeding, even pretty copiously, can rarely be dispensed with. I speak now of the disease as it appears in this country. To this remedy may also be added occasionally purging with the neutral salts, and the antimonial preparations with a view not less of diminishing arterial action than overcoming the stricture on the surface of the body. The whole antiphlogistic plan is indeed to be pursued. If there be much local affection either in the lungs or head, blisters should be employed. Change of air, especially by removal to the country will be found most speedily and certainly to subdue those distressing effects which too often follow the disease, such as diarrhœa, cough, &c. C.

‡ This he defines to be a rose-coloured rash, without scales or papulæ, variously figured, and not contagious. By some former writers, this term is applied to a disease resembling nettle-rash. Vide Lory, p. 398.—The appearance of *roseola æstiva* is extremely well expressed by Dr. Willan in his plate.

all the body. The patches are larger and more irregular than those of the measles,\* in which the eruption consists of spots like flea bites, and patches made up of these spots arranged sometimes in a crescentic form, and of a colour seldom deeper than bright scarlet, often much paler. In this disease, however, the eruption is at first red, but in general it soon assumes a deep roseate hue, from which Dr. Willan gives its name. The fauces are tinged with the same colour, and the patient feels a slight roughness in the throat. The eruption appears first at night, and continues vivid next day, with considerable itching. On the third or fourth day, only slight specks of a dark red colour are observable, which next day disappear, and together with these the internal disorder. In some instances, the skin on many parts, becomes of a dusky colour, with an appearance of slight vesication, or desquamation. The drowsiness, sneezing, watery eyes, and running at the nose, so common in measles, are wanting in roseola, and there is no pulmonic complaint, whilst, at the same time, the patches are larger, and occasionally intermixed on the body with an appearance of nettle-rash. Sometimes the rash is only partial, appearing in patches, slightly raised above the surface, with a dark red flush of the cheek. This form lasts about a week, the rash appearing and disappearing occasionally; and usually the disappearing of the rash is attended with nausea, faintness, &c. In some cases, no fever is observable, or the progress and duration of the eruption is more irregular than I have described; and sometimes on the breast or trunk, the eruption has a great resemblance to urticaria, whilst on the arm, the appearance is decidedly like roseola. This disease appears to be somewhat infectious. For, in particular seasons, I have observed it to be unusually frequent, and to affect all the children of a family. In such cases the eruption has lasted from two to four days, but has been attended with very little fever. The only treatment which is necessary, is giving gentle laxatives, the use of

\* Sometimes young infants have an efflorescence of numerous coalescing patches, of a strong red colour, rounded, and of the size of a six-pence. These terminate in desquamation in less than a week.

acids, and light diet. If the eruption be suddenly repelled, the warm bath is proper. Should there be a marked determination to the head, brisk purgatives are proper.

Another species, called *roseola autumnalis*, affects children generally in the harvest, and consists of distinct patches, of an oval or circular shape, which increase to nearly about the size of a shilling; they are not elevated, but are of a very dark colour, appearing, at a distance, as if a black cherry or brambleberry had been pressed on the skin, so as to leave the impression. The patches are not attended with fever, are usually diffused over the arms, and disappear in about a week. Acids may be taken internally.

The *roscola infantilis* appears during dentition, or in a disordered state of the bowels. It consists of a red efflorescence, usually very closely set, so that the surface is almost entirely of a red colour, as in *scarlatina*; but there is more appearance of patches than in that disease, and the other symptoms are wanting. The eruption generally goes off in a day, but it sometimes appears and disappears for several days, with symptoms of great irritation. No particular treatment is necessary, except what is required on account of concomitant circumstances. It is sometimes preceded or attended by vomiting or convulsions, with pale face and languor. In such cases, a gentle emetic, the warm bath, and cordials are proper.

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## CHAP. V.

### *Of Hydrocephalus.*

**HYDROCEPHALUS** is one of the most dangerous and insidious diseases to which children are subject. It sometimes makes its attack suddenly, cutting the patient off in a few days; sometimes more gradually, and is protracted for many weeks or months. It has, therefore, been divided into the acute and chronic; and as it may either appear as an idiopathic disease, or come on in the course of other diseases, at

first quite different, it may likewise be distinguished into the primary and secondary.

Acute hydrocephalus begins very like a common fever, but there is more frequent vomiting, and greater pain in the head, especially on one side; whilst in most other fevers of children, the greatest uneasiness is generally felt in the belly, the head being often unaffected. After the febrile symptoms have continued for some time, marks of oppressed brain appear, and the patient dies comatose, or convulsed. Such is the outline of the disease, which, however, it will be necessary to describe a little more minutely. Very often the patient, for some time previous to the attack, is languid, peevish, and uncomfortable, without any particular complaint. The appetite is impaired, he has frequent sick fits, or vomits bile, and the bowels are generally very costive, though sometimes he purges foetid, dark-coloured, or green fæces, and he complains occasionally of his head. Towards evening, the face is a little flushed, and the skin is hot, and very soon the disease becomes formed. In other instances, however, and these by no means unfrequent, the disease invades more suddenly, or with scarcely any previous indisposition. The patient feels chilly, whilst his skin is hot; he complains greatly of his head, especially at the forehead, or at one side, sometimes very much of his neck. He cannot keep out of bed, his eyes are very sensible to the light, and, when examined, the pupils are contracted, sometimes irregularly, and the eye in some cases is troubled, in others as clear as usual. Spasmodic cough and pains in distant parts occasionally supervene. The headache is constant, and produces moaning, or the patient lies silent and unwilling to speak a word, or often even to take a drink. The stomach is very early affected, and for some days he vomits bile, and whatever he swallows; has no appetite, and little thirst; the tongue is white, the bowels generally costive, but sometimes loose, and the stools in that case green and foetid; pain is felt in the belly, and occasionally in other parts of the body. The sleep is broken, and frequently interrupted, as if the patient had a frightful dream; he starts,

grinds his teeth, and picks his nose, which makes the disease sometimes pass for the consequence of worms. The pulse in a few cases, is not very frequent; but in general, especially if the disease be rapid, it is at first very quick, being about 120 in the minute. In about eight or ten days, the pupils are somewhat dilated, and the patient squints a little. In some cases, the vomiting is renewed, but more frequently it is not. The pulse at this time often becomes slow, beating only 60 in the minute, and being generally irregular. The pupil is more dilated, and the eye less sensible than formerly to light. The head-ache is usually diminished, but the patient frequently cries out, or even screams. In some cases, delirium comes on; in others, the patient continues sensible and intelligent, until the stupor supervene. More food is often taken, in this stage, than formerly. In the course of either two or three days, the pulse becomes again quicker, the pupil more dilated; but still the patient may continue to see, and complain of the light, and often answers distinctly every question. Presently, however, the symptoms of oppressed brain become greater, the pulse is weak, and gradually increases to 160 in the minute. The eye squints, vision is at last lost, the urine is either retained, or, with the feces, passed involuntarily. The breathing becomes stertorous, and the patient dies. In the course of this malady, the cheeks are alternately flushed and pallid; and after the second stage, one side is more or less paralytic, whilst the other in many cases is convulsed; indeed convulsions may come on at any period of the disease, even in its commencement. The symptoms are generally aggravated during the night. When the patient sleeps, the eye-lids are often only half closed, and the eyes turned up. He complains much, or becomes giddy, when the head is raised.

Hydrocephalus has been divided into three stages, characterized by the state of the pulse and of the sensibility. In the first, the pulse is frequent, and the sensibility great. In the second, the pulse becomes slow, with marks of oppressed brain. In the third, it is again rapid, there is great debility

and cerebral irritation. But it is to be recollected, that these stages are not always well defined, for sometimes the pulse never becomes slow.

This disease runs on generally till the twenty-first day, if the patient be above two years old; but if the child be younger, it often terminates more speedily, sometimes so early as the fourth or fifth.\*

From this account, it appears, that the symptoms, when the patient can describe them, are in the first stage much the same with those of the common fever of the adult, or many of the febrile diseases of children, and that upon these supervene those of oppressed brain. In some cases, however, water has been found in the ventricles when no symptoms indicated it during life,† or when many of the usual symptoms were absent.‡

Infants cannot give an account of their sensations, and therefore we are more uncertain, until the symptoms of oppressed brain appear. We may, however, dread the nature of the disease, when the infant has a high fever, vomiting, with costiveness or diarrhœa, lies oppressed, and apparently sick, with the eyes obstinately shut, dislikes the light, puts the hand frequently up to the temples, as if going to rub something off the head, has starting and spasms, and awakes suddenly as if terrified, and sucks or drinks at first with great rapidity. The diagnosis, it must however be confessed, is

\* It is not at all uncommon in hydrocephalus at the expiration of eight or ten days, especially if its progress has been rapid, for the more violent symptoms to subside so as to induce a very sanguine expectation of a speedy recovery. This is often a most treacherous and fatal calm, as it results from an effusion in the ventricles of the brain. The vessels in this way become relieved, and the disease is suspended. After a short time, however, the extraneous fluid acts as a re-exciting cause, and the disease returns with redoubled force. Under such circumstances, it is perhaps incurable. Effusions in other cavities of the body may be taken up, but as far as we know, the ventricles are destitute of absorbents, or if they exist, they act incompetently in these cases. C.

† Vide Quin's Treatise, p. 43.

‡ Dr. Rush mentions cases where there was no pain in the head, or where it began like a catarrh, or wanted the strabismus, dilated pupil, sickness, and loss of appetite. Med. Inq. Vol. II. p. 210.

very difficult; for in disorders of the bowels, from dentition and other causes, spasms, starting, drowsiness, and strabismus, may take place.\* It is perhaps prudent, whenever there is much fever, with any ambiguous symptoms, to proceed as if the patient were threatened with hydrocephalus, more especially, as the early use of the remedies thus indicated will generally be serviceable in the complaints with which this disease may be confounded; and if we delay to the last stage, to obtain a more certain diagnosis, we have scarcely any hope of doing good. When children can give an account of their sensations, we may with great justice fear this disease, when they complain much of the head, have vomiting, and quick pulse.

Dissection shows that the vessels of the brain are full of blood, some of them very turgid, the membranes and brain in some places seem inflamed, and covered with coagulable lymph; whilst betwixt the dura mater and the brain,† but still more frequently in the ventricles of the brain, there is an accumulation of water, sometimes to the extent of several ounces, and it is generally of a very pure and transparent quality. The abdominal viscera are sometimes inflamed.

Hydrocephalus is produced by causes, the operation of which cannot always be detected, but sometimes it can be traced to the sudden removal of an eruption, or cutaneous discharge from the scalp, blows on the head, &c. A scrofulous constitution appears to give predisposition to the disease. The term hydrocephalus is, perhaps, in one sense improper, as it expresses merely a symptom occurring in the end of the disease, and which does not exist whilst the disease is curable. No one thinks of calling pleurisy, empye-

\* A very interesting case, where strong symptoms of hydrocephalus were produced by accumulation of the fæces, and a speedy cure obtained by purging with senna, is related by the late Mr. Benj. Bell.—Hamilton on Purgatives, p. 217.

† In this case the disease is called *hyd. externus*, to distinguish it from the species in which the water is in the ventricles, which is called *hyd. internus*.

ma, though that is a termination of pleurisy ; it would be apt to call the attention of the practitioner to a different set of indications from those pointed out in the inflammatory stage.\*

The most proper treatment would seem to consist in the early application of leeches to the temples, and purging the patient with calomel ; after which, the bowels are to be kept rather loose. These means should always be had recourse to on the very first attack of the febrile state, and in many cases will effectually check the progress of the disease, and prevent effusion. But if they do not immediately give relief, the head should be shaved, and a blister applied. If the patient has a diarrhœa instead of being costive, it ought not to be rashly checked : but if the stools be green, fœtid, or contain lumps, doses of calomel should be given repeatedly. In the second stage, mercury combined with digitalis should be used freely, and repeated blisters applied to the head, so as to keep up a discharge. If the spasms are very frequent, opiates may ultimately be employed, as they will, at least, render the appearance less distressing to the relations. Such is the nature of practice in this disease ; but when effusion has taken place, it is difficult to prove that medicine has any power over the malady. It is only in the very commencement that we can do good. If this period be lost, no future vigilance can regain the ground. I do then most earnestly intreat my reader to resort timeously to the application of leeches and smart purges, which alone can subdue the mor-

\* This is a correct distinction. The proximate cause of the disease, or indeed the disease itself, is an increased action of the vessels of the brain : the proximate effect, an effusion of water into the ventricles. By confounding the disease with the effect, practitioners have given very opposite and contradictory reports respecting the powers of medicine in curing it. By bleeding, purging, cupping and blistering, we can undoubtedly often cure the *disease itself*, but, when effusion has taken place, it may be deemed generally a *desperate case*. We should, therefore, endeavour to relieve the blood vessels by the most active depletion so as to prevent effusion. It is now more than thirty years since Dr. Quin pointed out not only the *correct theory*, but also the *proper practice* in this disease. His valuable treatise on the subject cannot be too often consulted.

bid action which precedes effusion. If from a hope that the disease is of a less formidable nature; or from fear of giving unnecessary alarm in a case not decidedly dangerous; or from the still more inexcusable cause of inattention, these means be neglected, how bitter is the reflection which arises in the mind, when symptoms of effusion appear. We cannot, indeed, by the most early and vigorous treatment always save our patient, but we can by this conduct always obtain the consolation of thinking, that we have faithfully done our duty.

When hydrocephalus is known to be a family disease, it will be proper to use every mean to strengthen the constitution, such as the cold bath, light nonriching food, and strict attention to the bowels. If the child be plethoric, the bowels should be kept loose, and a small issue may be inserted. We should be particularly careful not to heal too suddenly any eruption, especially about the head. The first symptoms of disease must be watched; and we had better be blamed for using remedies too early, than have to regret that we employed them too late.

The chronic hydrocephalus makes its attack more slowly, and runs its course with much less speed. It seems sometimes to be gradually approaching from birth, the child being dull, languid, subject to frequent fits of stupor or drowsiness, and the head enlarging faster than it ought to do: or it may even begin in utero. In other cases, the child is at first tolerably healthy, and it is many years before symptoms of the disease appear. First of all, we observe him to be duller than usual, with a slight degree of fever, attended with pain in the head, sometimes constant but moderate, sometimes attacking like paroxysms of head-ache, attended with sickness and vomiting. He is amused for a short time with the entertainments of his age, but is soon tired, and generally is found, after a little play, lying on a chair. The appetite is gradually impaired, and his food is apt to sicken him, or to be rejected by vomiting. The head-ache becomes more constant, and sometimes severe, often attended with giddiness, and pain or stiffness in the neck. The skin is rather hot, the

pulse at first is frequent and irregular, though in some instances it very early becomes unusually slow, and continues so for a long time. The bowels are constipated, the urine sometimes passed with pain and difficulty. The eye is dull and languid, and at times the patient sees double or indistinctly. After these symptoms have continued some time, the bones of the head enlarge greatly, if the sutures have not united, and the veins on the scalp become very distinct. The body wastes, and the muscular powers are more or less impaired. In this state, the patient may live many months; or occasionally the disease seems to receive a check, and the patient lives for years with an enlarged cranium, and sometimes in a state of idiotism. In general, however, in a few weeks, or at most a few months, the symptoms of compressed brain become more distinct. The pupils are dilated, the patient squints, the limbs are paralytic and convulsed, the urine is suppressed so that the catheter is required, the pulse full and slow, but presently it becomes weak and fluttering, and the patient dies comatose, with stertorous breathing. When the patient can give an account of his sensations, we may early be led to suspect some disease in the head, but in infancy we can receive no account of the sensations. We may discover it, however, by the unhealthy look of the child, the frequent application of the hand to the head, which often is greater and feels heavier than usual, even before water be formed; drowsy fits, and sometimes convulsions; vomiting, and awaking terrified from sleep; at the same time that there seems to be no tendency to dentition. Afterwards the size of the head, and other symptoms, indicate the disease more decidedly.

There is an affection, which is liable to be confounded with chronic hydrocephalus. The patient complains of his head and neck for a length of time, has the pain increased by exercise, agitation, or reading long, and sometimes he squints. The pain, however, is rheumatic, follows the course of that disease, is not constant, and shifts its place. The squinting is either habitual, and consequently accidental, with regard to the disease, or it is caused by a temporary affection of the

muscles of the eye, and is increased by looking long at any object. The patient is easily agitated, and, at a more advanced age, would be said to be hysterical. Laxatives, bark, and sea-bathing, are useful.

On opening the head, we generally find a great quantity of water in the ventricles, and some even on the surface of the brain. Sometimes the ventricles are so much enlarged, that the cerebrum resembles two vesicles pressing on the cerebellum. The bones of the cranium are occasionally very thin and softened, sometimes very irregular on their inner surface. In a girl who died, after having been ill for about five months, I found the inside of the cranium, at the lower part, covered with sharp bony processes or spines.

The practice consists in the application of blisters to the head, or the formation of an issue on the scalp by means of caustic. The bowels are to be kept open, or at least regular, by the use of purgative medicines; and it will be proper to give a course of calomel or mercury, combined with digitalis, nearly in the same doses we would use for dropsy. By this plan, some children are cured, and others have the head reduced in size for a time.\* These have the urine considerably lessened in quantity; and when the medicines do good, they increase the flow of urine. It has been proposed, by bandages and other means, to support the bones of the head, and prevent distension, but of this I can say nothing from my own observation.

The secondary hydrocephalus is a very frequent disease, and is extremely insidious. The symptoms at first are quite independent of any affection of the head, and arise from dentition, disorders of the bowels, or other causes. But in the course of the disease so excited, especially if it be attended with fever, symptoms indicating a diseased state of the brain, supervene with more or less celerity. That this should take place is not wonderful, when we consider the remarkable

\* In a case attended by my brother, he succeeded so far with the mercury and digitalis, as to render the fontanelle slack, whereas, before, it was tense and prominent. But whenever this slackness was produced, convulsions came on, and the patient died.

sympathy existing betwixt the brain and other organs, and the great vascularity of the brain, as well as its delicacy in children. But however the fact is to be explained, its existence is undoubted. It is unfortunate, that the first set of symptoms often fix the attention of the practitioner solely to the cause which is supposed to produce them, whilst the new disease is overlooked until all hope is at an end. It is highly necessary, in all diseases of children, to watch the safety of the head; and whenever symptoms appear, indicating an affection of that organ, to have recourse to the application of leeches, blisters, and other means, which have been pointed out. Indeed, in all protracted diseases of children, especially if attended with considerable fever, it will be prudent to shave the head, and apply a small blister upon it. Calomel purges are of great utility.

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## CHAP. VI.

### *Of Convulsions.*

CONVULSIONS proceed from various causes during infancy. They very frequently arise from irritation in the bowels, from dentition, or in the course of eruptive fevers. Sometimes they proceed from immediate affections of the brain itself, and very often they occur in hydrocephalus. They may be distinguished into those proceeding from a primary affection of the brain,\* and those occasioned by sympathy with some other organ in a state of irritation. It is not, however, easy to make the diagnosis in every instance; and when convulsions continue long, whatever may have been their origin, the brain ultimately suffers; and if the disease be protracted, the patient becomes emaciated, and perhaps

\* An epidemic convulsion is mentioned as prevailing at one time in Paris, affecting children under eight years of age, and young whelps; in which blood was constantly found effused under the cranium. It proved fatal in seven hours. *Recueil. Period. Tom. IX. p. 286.*

paralytic, or even hydrocephalus may very early be excited.

We may be assisted in our judgment, by examining the gums, especially if the child be about the time of life when teeth appear; by inquiring into the state of the bowels, whether they be loose or bound, or the child be troubled with worms; by learning if an eruption have suddenly disappeared: or if the child have been frightened, or had heavy food, or too much food, or been sucking a woman whose mind had been recently agitated; or if none of these causes be discovered, we should inquire if the child have already had those febrile eruptive diseases, which are often preceded by convulsions, especially small-pox. In at least nine cases out of ten, convulsions proceed from irritation of the bowels; the stools being generally unnatural, or the digestive functions impaired. This observation is of much importance in practice, as it points out both the means of prevention and of cure.

Very young infants are subject to a slight degree of spasms called inward fits, in which the mouth is, during sleep, drawn into a smile; the eye-lids are not quite closed, and the eyes are turned about, so as at times to discover the white; the breathing seems occasionally to flutter, and the child is very easily startled. These fits appear to be occasioned by wind in the stomach or bowels, for they are relieved by a discharge of wind, and require some carminative, such as sugar of anise, with a gentle laxative. They generally go off in a short time, but sometimes they are succeeded by vomiting or purging, or drowsiness, ending in convulsions.\*

\* Dr. Armstrong was the first I believe who called the attention of physicians to this complaint. He has written very elaborately upon it, and deems it much more formidable than it is commonly represented to be. Where it is neglected, he says, "it will degenerate into an almost constant drowsiness, which is succeeded by a fever and thrush, or else it terminates in vomitings, sour eurdled or green stools, the watery gripes, and convulsions." The antimonial wine given as an emetic is the chief remedy which he has suggested.

Notwithstanding the preceding frightful picture, I cannot help considering "inward fits" as a very trifling sort of complaint, too trifling, indeed, to

Some children, very early after birth, appear languid, moan, and pass dark-coloured fæces, different from meconium, and after it, in the usual course of things, ought to be removed. Presently they fall into a state, rather resembling syncope than convulsions, and die perhaps in forty-eight hours after they are born. The early use of calomel, in small doses, conjoined with some gentle aromatic, is proper.\*

Others, soon after birth, are seized with a violent fit of crying, and they become more or less distinctly convulsed, and the muscular irritation may repeatedly recur. This is relieved by the warm bath, gentle laxatives, and rubbing the belly with a little laudanum. I have sometimes thought that this state was induced by tying the cord too near the belly, by which an irritation was communicated to the abdominal viscera. Infants of a month old, who are subject to severe fits of crying from colic, which is often induced by bad nursing, may be suddenly carried off by a convulsion after a violent and continued paroxysm of screaming. This state requires great attention to the bowels and to diet.

Regular convulsions may occur at a very early period of infancy, and in this case attack those children who, from the time of birth, have been subject to heavy sleep, or to whine and moan, or to violent screaming, or to start suddenly from their sleep, and who have twisting of the extremities while awake.

Convulsions vary much in their degree and duration. Generally the child is seized quickly with a spasm of the muscles of the arm and legs, which are agitated to and fro, the fists are clenched, the body bent back, the features distorted, the eye-lids open, the pupils dilated, and the eyes

get a place among the diseases of infants. That very young children often exhibit the symptoms described by Mr. Burns is undoubtedly true. These, however, will be found to proceed from uneasiness, the consequence of an overloaded and distended stomach. The mild carminatives will generally give relief. But if they fail, the stomach must be emptied by a puke or purge. It is better however to prevent this complaint altogether by a proper regulation of the child's diet. C.

\* At this very early stage of life, I would prefer purging with castor oil to calomel. C.

either fixed in the socket or rolled about. The face is either pale or livid. These convulsions may prove very suddenly fatal; but sometimes after the fit has lasted a minute or two, it goes off and does not return. In other cases, it returns very frequently for several days, or at uncertain intervals for many weeks. In general, the longer the fits, and the shorter the interval, the greater is the danger. The occurrence of paralytic symptoms or emaciation, in those cases where fits are frequently repeated, add greatly to the danger, and generally indicate hydrocephalus.

When a child is seized with convulsions, a very great alarm prevails; and it is expected, that if the practitioner arrive before the child is carried off, or has recovered from the fit, very prompt and active means must be employed. The first thing to be done, is to order a warm bath and a clyster to be got ready immediately; and while these are preparing, we inquire into the circumstances of the case, and examine the gums. If the child be at the time of teething, and no other cause be discovered, it will be proper to cut the gum freely over that part where the teeth ought, according to the usual order of dentition, to appear, even although no swelling be discovered. Then the child is to be put into the warm bath, the face alone being kept above the water, and he is to be retained there for a few minutes, if the fit do not pass off sooner. In some instances the addition of a little hartshorn or mustard to the bath is useful. When the child is taken out of the bath, a cloth is to be applied over the stomach, or great part of the abdomen, wet with strong spirits, and lightly sprinkled with pepper. A clyster is at the same time to be thrown up, so as to operate speedily; and this is to be followed by a calomel purge, and the subsequent use of laxatives, to keep the bowels open. Even if the child has diarrhœa, if the stools be not natural in appearance, laxatives will be proper, according to the directions given in considering diarrhœa.\* Emetics have also

\* The propriety of giving purgatives in convulsions, when the bowels are costive, or the stools unnatural, is confirmed by experience, and the effects of this course in chorea.

been employed during the fits ; but unless we have reason to suspect that some indigestible or improper substance has been taken, they will not be so beneficial as laxatives. But when fits are only apprehended in dentition, from starting, feverishness, and circumstances ascertained by former experience to precede convulsions, a gentle emetic is often of service, and ought to be followed by the warm bath and some antispasmodic, such as asafœtida, conjoined with a laxative if necessary. Tincture of asafœtida, with the addition of oil of anise is a very useful remedy, or we may give tincture of hyoscyamus with oil of anise. When it is deemed proper to exhibit emetics during the fit, a few spoonfuls of a solution of sulphate of zinc may be given in quick succession, as operating speedily and safely ; or ipecacuanha may be employed, and the fauces tickled with a feather, to hasten its operation.

If the face be flushed, or the arteries of the neck beat strongly, it will next be proper to apply a leech to the forehead, and avoid stimulants ; but if the face be pale, a few drops of the aromatic spirit of ammonia may be given repeatedly, or a little white-wine whey may be used in place of it.

Opium is hurtful when the face is flushed ; and even when it is pale, is only useful when there seems to be considerable irritation about the bowels, or from the gums. Oil of rue is strongly recommended by Dr. Underwood ; and when the fits are repeated, it will be proper to make use of this, or asafœtida, castor, or other antispasmodics. The spine should, in such cases, be repeatedly rubbed with some stimulant embrocation, or oil of amber, and a blister should be applied to the head, after it has been bathed for a time with cold vinegar.

When a child has repeated convulsions, and almost constant moaning and bending back of the neck or spine, the disease is incurable, as it proceeds from water in the head. It may, however, be protracted for several weeks. Repeated small blisters on the head, and the daily use of calomel, may be tried in such chronic cases, but at last, the only relief is obtained by opiates.

*Trismus nascentium* is not a very frequent complaint in this country, but it is not uncommon in warm climates. It makes its attack within the first fortnight of life, very rarely before the sixth day, and has been supposed by some to be connected with a costive state of the bowels, by others with the falling off of the navel string and the state of the umbilicus.\* In some instances, the spasm is confined to the jaw, which is rigid and closed ; in others it extends to the neck or trunk, which is stiff and bent back. The disease is very fatal, notwithstanding that the warm and cold bath opiates, purgatives, and blisters, have been fully tried. The state of the navel should be attended to, and proper dressings applied, so as to avoid irritation.

After the period of infancy is past, and during the time when the second set of teeth are coming out, convulsions are generally of the epileptic kind, attack suddenly, the patient screaming out as if terrified, and then he falls down convulsed. When the fit goes off, the patient becomes nearly quite well. These do not indicate that the patient shall be subject, after puberty, to epilepsy. They are relieved by attending to the state of the gums, removing decayed teeth, and cutting the gum over the grinder which is coming out, but especially by keeping the bowels open. *Ol. succini*, *valerian*, sea-bathing, and tonic medicines have also been found of service ; *asafoetida* or camphor given by the mouth, or in clysters, have been useful. Convulsions have sometimes been caused by impure air, and can only, in such cases, be relieved by a removal to a purer atmosphere. This is a fact which it may be of service to remember.

\* Vide a paper by Dr. Bartram, in *Trans. of Coll. of Phys. at Philadelphia*, Vol. I. p. 227.

## CHAP. VII.

*Of Chorea and Paralysis.*

THE convulsions called chorea sancti viti, attack children most frequently from the age of eight years to that of puberty. This disease makes its approach with languor, and dislike to the entertainments of the age; a variable and sometimes very keen appetite, in general continued costiveness, attended usually with a hardness and swelling of the abdomen, especially at the lower part, though occasionally the belly is flabby, and rather small, instead of tumid. Sometimes the bowels are open, but the stools are not of a natural appearance. Presently convulsive twitches and motions of the muscles of the face take place, and are succeeded by more marked convulsive affections of the muscles of the extremities and trunk, so that the patient cannot sit still, nor carry a cup of tea safely to the mouth. These are often almost constant; even when the patient is asleep, the limbs are in motion, and the rest is greatly disturbed. He does not walk steadily, and sometimes seems to be palsied, or the motion may be very rapid, the head shaking like a rattle. The patient is sensible during the convulsive motion. At a more advanced period, the countenance becomes vacant, the eyes dull, the speech is affected, and, in some cases, the patient cannot even swallow without difficulty. Emaciation takes place, and a febrile state may be induced.

A variety of remedies have been tried in this disease, but none with so much advantage as purgative medicines, which have been prescribed with the happiest effect by Camper,\*

\* "Having described the nerves, I now come to the symptoms, which are easily explained by their connection. I will begin with tremour of the feet, which is common in hysterical cases. But I ought in the first place to mention, that the dreadful hysterical symptoms, which we daily see either in individual parts, or in the whole body, are altogether dependent upon the accumulation of acrid matter in the primæ viæ; for the intolerable fœtor, the scantiness and unnatural appearance of the faces always warn us of an approaching paroxysm of rigours and convulsions.

Sydenham, and Hamilton. These, if given early, and before the disease is fully formed, will very effectually relieve the patient, and at this time they only require to be gentle, and repeated, as the state of the bowels may require. But when the disease is confirmed, "powerful purgatives must," as Dr. Hamilton observes, "be given in successive doses, in such a manner that the latter doses may support the effect of the former, till the movement and expulsion of the accumulated matter are effected, when symptoms of returning health appear." Calomel and jalap are useful purgatives in this disease, and Dr. Hamilton is in the habit of using aloetic pills on the days when these are not employed, which is a useful practice when the patient can swallow pills. My own experience leads me decidedly to agree with Dr. Hamilton in the employment of the aloetic pills, two of which may be given three times a-day, or according to the effect they produce. Dr. Underwood recommends aloetic and mercurial purges. By these means, chorea is often cured in a fortnight, or, in obstinate cases, within two months. Boys are said to be more readily cured than girls. If no great amendment take place soon, we must not on that account desist, but continue the purging plan for several weeks, and generally we succeed at last. Tonic medicines are useful adjuvants, and in obstinate cases, we must take the assistance of copper, arsenic, and the other remedies which formerly were chiefly trusted to for the cure of convulsions. The food should be light and nourishing, and due exercise taken in the open air.\*

Some children are apt to awake during the night screaming violently, or in great agitation, as if in dreadful terror.

"Ought not purgative medicines, and even the most drastic ones, to be exhibited? they probably might cure spurious epilepsy, chorea sancti viti, and other spasmodic diseases, hitherto generally deemed hopeless by medical men." *Camper on the Pelvis*, Chapter iii. section 7.

\* I can bear testimony to the decisive and superior efficacy of active and continued purging in chorea. Two cases of the disease in boys, which had been previously treated for several months by stimulants and antispasmodics, without the least advantage, were perfectly cured by me in a very few weeks, by administering every two days; a powerful purge. C.

This proceeds from a dream, but the imaginary scene continues after waking, the child, for example, insisting that snakes are crawling along the curtains. This is cured by a smart purgative, given every two days for some time, and avoiding much supper.

A weak, or even completely paralytic state of one of the superior or inferior extremities may take place, in consequence of a bad state of the bowels, in which case the stools are offensive, and the belly tumid. This is cured by purgatives and friction. But it may also proceed from some slight pressure of the brain, or medulla spinalis, though no mark of this can be discovered locally, unless it be that often the head is rather larger than usual. Sometimes one arm appears to be either powerless or weak for many days, and yet otherwise the child is in health. This yields to a purge and friction with oil of amber. In other cases, one leg is long weak, and the child drags it slightly. Whimsical practitioners have mistaken this for diseased hip-joint, though the bone were precisely the same with that on the other side. It goes off in course of time, and only requires the cold bath.

It has happened that children have had a distinct attack of apoplexy, succeeded by palsy. This requires the same treatment as in adults.

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## CHAP. VIII.

### *Of Croup.*

THE croup is divided by some writers into two species, the inflammatory and spasmodic; but there is perhaps no case of croup in which spasm is not to a certain degree combined, only in some cases the inflammatory symptoms are more prominent than in others. The croup begins with shivering and other symptoms of fever, which, when the child is old enough, can be very well described by him; but in infancy, we discover them by thirst, restlessness, starting, hot

skin, and a tendency to vomit. Along with these symptoms, but sometimes for a day or two preceding them, the child has a dry hoarse cough. In some cases, the attack is very sudden, the previous indisposition being short and scarcely observable. The local disease manifests itself by a difficulty of breathing, attended with a wheezing noise; the voice is shrill, the cough is a very particular sound, somewhat resembling the barking of a little dog; others describe it as resembling a cough sounding through a trumpet. It is not uncommon for vomiting to attend this cough in the early stage. The pulse from the first is frequent, the patient is restless and anxious, and the face flushed, the eyes often watery and inflamed, and the mouth frequently filled with viscid saliva or phlegm. Very soon, especially in those cases where the face is much flushed, a great degree of drowsiness comes on, from which the child, however, is frequently aroused by the cough, and fits of suffocation, and great agitation; for this disease has exacerbations, during which the heavy sonorous breathing is exchanged for a violent struggle, in which the child makes a crowing noise, and if old enough, starts up, and clings instantly to the nearest object, and stares most piteously. If the disease be more mild, the face in this remission is sometimes pale, otherwise it is flushed, and before death it assumes a blue or purple colour, whilst the lips become livid; in the early stage they may be rather pale. If it do not prove suddenly fatal, the face and lips become tumid in the progress of the disease. Convulsions sometimes succeed the cough.

The duration of the complaint is various; in some cases it proves fatal in a few hours, in others not for a week, but most frequently in a day or two. Much depends, in this respect, on the degree of inflammation, the violence of the spasm, and the strength and constitution of the child. Sometimes there is much more of spasm than inflammation in the disease, in which case we have less fever, less permanent dyspnoea, and less frequent cough, but the attacks of suffocation are not milder. Those cases end best, where the breathing is least sonorous, the fever most moderate, the

cough early attended with expectoration, and the symptoms seem at times to become so slight as to constitute intermission.

Dissection has always discovered, on the inside of the larynx, a lymphatic incrustation, or layer of membranous-looking substance, which is sometimes coughed up in considerable portions.\* This, though it adds greatly to the danger and distress of the patient, is not to be considered as the cause of the disease; for it is merely an effect of inflammation, which, together with spasm, could produce all the symptoms without its aid.

The most frequent cause is the application of cold and damp. Infants under six months are not often seized with this complaint, but from that period to the age of puberty are obnoxious to it.† They are peculiarly liable to it soon after being weaned.

From the nature of the disease, blood-letting has been with most practitioners a favourite remedy, and, doubtless, has of itself cured the complaint. In such cases, however, it has generally been pushed too far, and been succeeded by great debility, for children do not bear much evacuation of blood.‡

\* This is too general an assertion. Dissection does not always discover a membrane in the larynx. On the contrary, I believe, it is very rarely found. Though I have examined many children who have died of the croup, I have never yet met with it. I have sometimes seen a collection of impacted mucus, but never any thing which resembled, in the least, a membranous organization. That the membrane of inflammation, however, occasionally exists in the trachea I cannot doubt, as it has been mentioned by very credible writers. C.

† Croup sometimes occurs even among people of advanced age. Cases of this kind have been repeatedly noticed by different practitioners in this country. C.

‡ If by this observation, the idea is meant to be conveyed, that children compared with adults are more apt to sink under the loss of blood, it is not only, I think, erroneous, but in its practical tendency exceedingly mischievous. During the growth of the body, the fluids, and especially the blood, in relation to the solids are larger in quantity, as is distinctly shown by a variety of circumstances. This fulness of their vessels, and the greater excitability of their systems, render children peculiarly liable to inflammatory affections. Nearly all their diseases partake in some degree of this character. It follows, therefore, that they require oftener to be bled. My

In the commencement of the disease, detracting blood, especially if followed up by an emetic, will usually be found of great service, and ought seldom to be neglected; but it is not to be trusted to alone, neither should it be employed late in the course of the disease, nor even at an early period ought it to be repeated, if the symptoms do not speedily seem to yield to it. If possible, the blood should be taken by opening a vein, which is generally very easily done even in infants. If this cannot be done, leeches must be applied to the throat, but they are not equal to venesection.

Emetics have been greatly recommended by some, whilst others have little faith in their utility. I have sometimes observed great benefit from them, if employed very early; and

own experience, confirmed by that of other practitioners, has perfectly satisfied me, that blood-letting may be used with as much safety, and decidedly with greater advantage in the complaints of children, than in those of adults. If too, they do not at the time bear the loss of blood better, they undoubtedly recover much sooner from its effects. The prejudice against bleeding in children seems to have arisen out of the too prevalent opinion, that owing to an extreme delicacy and frailty of constitution, they cannot bear any vigorous impression. As a natural consequence of this opinion, the general practice in their complaints is extremely feeble, exactly, indeed, of that kind which has been facetiously described as observing a strict neutrality between the patient and the disease, neither declaring for the one nor the other. By no narrow or partial observation, I am thoroughly persuaded, that the very contrary of this opinion is true. Children, I have remarked, display an uncommon *tenacity of life*, and strength of constitution. They often survive under circumstances which destroy adults. They have been found living at the breasts of their mothers who had perished by exposure to cold. They resist contagion better than adults, and when attacked, more certainly recover not only from contagious diseases, but from all others, if properly treated. They also sustain better the operation of the most active remedies, namely, of vomiting, purging, sweating, and blistering; and, I may repeat, BLEEDING. These superior vital energies give, moreover, to children very extraordinary *recuperative powers*.

Children recover confessedly, more speedily from wounds, and injuries, and surgical operations. They likewise recruit more rapidly after being reduced either by disease, or by remedies. While there is any indication of life, however discouraging the appearances may be, I never consider the case of a child in an acute disease as altogether desperate. But still retaining some hope, I continue to administer to the restorative principle of the constitution. C.

would advise them to be given in every instance. Even in the advanced stage of the disease, emetics do much service, appearing mechanically to remove the lymphatic membrane. Decoction of seneka, and preparations of squills, have been used to assist the expectoration of the membrane, but they do not equal emetics for this purpose.

Antispasmodics have been trusted to, almost exclusively, by many ; but I apprehend that their exhibition ought to be confined to a different disease, which I shall immediately notice.

Blisters applied to the throat are useful remedies, and should not be neglected. The warm bath is also of service.

Calomel would appear to be a most powerful remedy in this disease, and, if given early, it will most frequently save the child. I do not, however, recommend it to the exclusion of other remedies, with which it is by no means incompatible. The early detraction of the blood, followed by an emetic, and the subsequent use of calomel, will afford the greatest hope of removing the disease. But I think it my duty to state, that in some cases no alleviation was obtained by any remedy but the calomel ; and in others it was trusted to alone, and with success. To an infant of six months, a grain and a half of calomel may be given every hour, until it purge freely ; to a child a year old, two grains ; and to one of two years, sometimes even four grains are given every hour, until the bowels are acted on, and the child purges freely or vomits repeatedly. The stools are generally green in colour, and their discharge is usually accompanied with an alleviation of the symptoms. When this is observed, the dose must be repeated less frequently, perhaps only once in two hours for some time, then still seldomer, and finally abandoned. Should the child be greatly weakened, either by the disease or the medicine, the strength must be afterwards carefully supported by nourishment and cordials. It is astonishing how great a quantity of calomel is sometimes taken in a short time, without affecting the bowels, or purging violently afterwards. Occasionally above 100, and often 50 or 60

grains are given in this disease. Salivation is not produced in children.<sup>(r)</sup>

That excellent and experienced practitioner, Dr. James Hamilton, jun. to whom we are chiefly indebted for the introduction of the use of calomel in croup in this country, from the practice of Dr. Rush,\* is extremely unwilling to bleed children freely in their diseases, from its subsequent debilitating effects; and in croup, begins at once with the calomel, after having used the warm bath. He observes that "in every case where it was employed previous to the occurrence of lividness of the lips and other mortal symptoms, (amounting now to above forty) it has completely succeeded, both in curing the disease, and in preventing any shock to the child's constitution." He adds, that he has now seen two cases, where, although the croup was cured, the patient sunk from weakness; and therefore very properly gives a caution to stop the calomel, whenever the symptoms begin to yield. The alleviation in true croup follows the discharge of dark green stools, like boiled spinage; in spasmodic croup, it takes place whenever vomiting has occurred. When much debility is produced, he, besides using cordials, applies a blister to the breast. I have a high opinion of the efficacy of calomel, but I cannot speak by any means so strongly as Dr. Hamilton; for even when it was early, pointedly, and exclusively employed, and brought away green stools, I have known it fail; and deem it my duty most earnestly to caution the reader against trusting to it exclusively; at the same time I must add, that I have known it procure recovery from very desperate cases, even without evacuation by stool; and when, after a

(r) This assertion may be considered as generally correct, but notwithstanding, instances have occurred of salivation being produced in children by mercury; and when this is unfortunately the case, it is apt to be attended with the most unpleasant symptoms, sometimes threatening gangrene, and requiring the most assiduous care and attention of the practitioner.

\* Mr. Burns has erroneously ascribed to Dr. Rush the credit of introducing calomel in the treatment of croup. As far as I have been able to ascertain, it was first employed in this disease about forty years ago by Dr. Kuhn of this city, to whom the practice of physic is indebted for some of its most valuable contributions. C.

great quantity of calomel was given and relief obtained, it was necessary to open the bowels by clysters. Calomel has been combined with ipecacuanha to produce vomiting, but I cannot satisfy myself that I have ever seen this combination do more good than either of the medicines would have done singly.

Spasmodic croup, or acute asthma, is often, but not necessarily connected with inflammatory croup. There is, perhaps, no case of the latter disease which is not attended with spasm of the muscles of the larynx, but there are many cases of spasm without inflammation; yet if the spasm continue long, there is a great risk of inflammation taking place, and of a membrane being formed. The spasmodic croup attacks children chiefly, but it may also affect women, especially about the age of puberty, and harass them occasionally for many years afterwards. It makes its attack very suddenly, generally at night, and sometimes for many nights in succession, especially if the child be agitated, or the mind of the young woman anxious respecting it. The patient breathes with difficulty, and with a wheezing sound, has a hard barking cough, with paroxysms of suffocation, as in inflammatory croup. The extremities become cold, the pulse during the struggle is frequent, but in the remission it is slower; and if the remission be great, it becomes natural, unless kept up by agitation. There is little or no viscid phlegm in the mouth, no drowsiness, but rather terror, and the eye stares wildly during the paroxysm. The disease is often suddenly relieved by sneezing, vomiting, or eructation. It differs, then, from the inflammatory croup, in the suddenness of its attack, in there being little fever, but only quickness of pulse, greatly abating when the child does not struggle for breath; no drowsiness, and little phlegm about the mouth. The cough is less shrill, and the fit often goes off suddenly and completely, either spontaneously, or by the use of the remedies acting quickly. Sometimes, however, inflammation takes place, and this disease is, in infants, very readily converted into true croup.

It is at times brought on by exposure to cold, and in that case, it is occasionally preceded by slight sore throat, or hoarse cough; but oftener the spasm comes on without any precursory symptoms. Sometimes it is excited by dentition, or, if the patient be older, by passions of the mind. Not unfrequently, a renewal of the disease is excited in those who are subject to it, by eating a full meal in the evening.

With regard to the treatment, I shall briefly state the result of my observation. In young girls, venesection has uniformly given relief, the spasm suddenly abating, and very soon going entirely off, after a certain quantity of blood has flowed. Topical blood-letting has not the same effect. But if the paroxysm should be repeated for many nights, this remedy cannot be employed on every attack, as it debilitates and predisposes to the disease. Emetics, such as sulphate of zinc, have the same effect with blood-letting in general; but sometimes the fit, though impeded during their operation, returns, and in such cases has yielded to venesection. Occasionally the emetic has been very long of operating, the stomach not being easily acted on; and in those cases, blood-letting has produced speedy vomiting and immediate relief. Opiates, and antispasmodics, such as ether, given in large doses, have, if exhibited in the very commencement of the attack, sometimes checked it, but have not always that effect, and, if not given soon, are longer of procuring relief. With regard to the effect of calomel in croup affecting girls and women, I can say nothing; for the paroxysm is so severe, that we cannot and must not trust alone to its operation.

A relapse is to be prevented by giving purgatives, and avoiding exposure to cold damp air. In young girls, a course of tonic medicines alone, or combined with asafœtida or valerian, will be useful; and when the attacks have been kept off for some time, sea-bathing will be proper.

With infants we generally succeed by giving instantly an emetic, and afterwards calomel in considerable doses, so as to produce sickness and vomiting, or free purging. But if the emetic do not decidedly mitigate the disease, then, in place of

trusting solely to the calomel, we premise if possible venesection. Asafœtida\* has been strongly recommended in this disease, and has sometime a very good effect. The warm bath is also useful. If the child be about the period of dentition, the gum should be examined, and cut if tumid. If the disease do not soon yield to these remedies, there is ground to suppose that it will be converted into the other species of croup; but this affects the prognosis rather than the treatment.†

\* Dr. Millar has given an ounce of this gum to a child of eighteen months old in forty-eight hours, and almost as much at the same time in form of clyster. His formula is as follows; R. G. asafœtidæ, ℥ii, Spt. Mindereri, ℥i, Aq. puleg. ℥iii M. s. a. A table spoonful of this is to be given every half hour. Vide Observations on Asthma, p. 43.

† The practice recommended by Mr. Burns is nearly the same as that which prevails in this country. Though the distinction of inflammatory and spasmodic croup is undoubtedly well founded, yet I am not aware, that it leads to any practical difference. My mode of treating this disease is as follows. I begin by endeavouring to puke the child very freely, and for this purpose I commonly employ the tartarized antimony, given at short intervals, as being one of the most certain and powerful of the emetics. At the same time I direct the child to be put into the warm bath for ten or fifteen minutes. This is a useful remedy. It rarely fails to promote the operation of the emetic, and will, indeed, alone sometimes cure the disease. If, however, the emetic does not operate, or if after its operation, the anticipated effect be not realized, I then bleed copiously, and repeat the bath and the emetic. The attack must be extremely obstinate if it do not now yield. Nevertheless, it will occasionally continue with little or no abatement. Under these circumstances, I resort to topical bleeding either by leeches, or by cups, and afterwards, if necessary, apply a blister, or sinapism of mustard to the throat; extending from ear to ear. If the preceding remedies fail, or the symptoms be so alarmingly violent as to demand immediate relief, I bleed *ad deliquium animi*. When pushed to this extent, I may almost say that blood-letting in these cases is invariably successful. I learnt this practice from two of the most distinguished physicians of our country, who seem to have employed it nearly about the same time. I allude to Dr. Belville of Trenton, and Dr. Dick of Alexandria. After the force of the disease is broken, which is shown by the alleviation of the hoarseness, and of the difficult respiration, and above all by the restoration of the natural susceptibility of the system to the action of medicine, I administer calomel, not in small and repeated doses as is more generally advised, but in the largest possible dose, in order that it may speedily and most actively purge. In this particu-

Some children are subject to slight wheezing, continuing for a day or two, with intermissions, and accompanied with a hoarse cough, but without fever. Emetics, laxatives, and a large burgundy pitch plaster, applied to the back, remove the disease.

Infants during dentition are subject to sudden attacks of spasm about the windpipe, producing a temporary feeling of suffocation with a crowing sound, but there is no hoarse cough. It is apt to take place suddenly at night, or when crying. It is relieved by rubbing the throat well with anodyne balsam, or laudanum, and giving a combination of tincture of asafoetida and of hyoscyamus. The warm bath is also useful. The gum should be cut.

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## CHAP IX.

### *Of Hooping-Cough.*

THE hooping-cough often begins like a common cold, the child coughing frequently, and having more or less fever.

In the latter stage of the disease, a thorough opening of the bowels carries off the lingering symptoms, obviates a relapse, and confirms the convalescence. But if cough, or hoarseness, with tightness of the chest and deficient expectoration remain, I employ the decoction of the polygala senega as an *expectorant*. It is in extinguishing the remains of croup that it displays, I think, its best properties. Doubtless, however, it may be used at an earlier period of the disease with advantage as an emetic. But still I prefer the emetic tartar. I have recently heard that croup has been very successfully treated by a watery solution of corrosive sublimate, by large quantities of melted lard or olive oil given internally, and by common mustard in the state in which it is used at our tables. Of the latter, a tea-spoonful is given to a child, to be repeated if required. Its operation in spasmodic croup especially, is represented to be most decisively useful. I have not tried, nor am I disposed to try any one of these remedies. They each come to me, however, recommended by very respectable authority. With the remedies already known to me I rest satisfied. These in my practice have rendered croup the most curable of all the violent infantile diseases. C.

In some cases the fever is slight, going off in the course of a week, in others very severe and long continued, attended with great oppression or sickness, and want of appetite. The cough generally comes on very abruptly, and is sometimes early attended with that sonorous spasmodic inspiration, denominated hooping, in other cases, not for a considerable time, and this is considered as a favourable circumstance, but it is not always so, for in young children, death may take place, although the disease never fully form. The fits are generally most frequent, and most severe during the night. When the cough becomes formed, the paroxysm consists of a number of short expirations, closely following each other, so as to produce a feeling of suffocation, relieved at last for an instant, by a violent, full, and crowing inspiration; then in general the cough or spasmodic expirations recommence, and the paroxysm, consisting of these two parts continues until a quantity of phlegm is coughed up or vomited, alone, or with the contents of the stomach, and this ends the attack. The expirations sound like a common cough, but are more rapid, and frequently repeated as in violent laughing. Sometimes the sound is lower, or the cough resembles the chattering of a monkey, quickly repeated. These paroxysms vary in frequency and duration. Sometimes they are slight; at other times, and especially during the night, they are attended with a most painful sensation, and appearance of suffocation, the face becoming turgid and purple, the sweat breaking, and blood gushing from the nose or other parts. The extremities become cold during the fit, and the whole frame is much agitated. But even severe as the paroxysms are, if the disease be not attended with fever, the patient seems quite well after the fit, and begins to eat with a renewed appetite. A fit of crying will at times, even after the disease has been apparently removed, excite the cough. The features often remain swelled for a considerable time.

Hooping-cough is very dangerous for infants, as they often die suddenly in a fit of suffocation; elder children escape more safely, though even they are sometimes carried off, the

fever continuing, or anasarca coming on, with exhaustion. Sometimes the lungs become diseased, and hectic fever takes place, or peripneumony is produced, or the lungs become œdematous. Convulsions may also occur and carry off the child.

Many remedies have been employed in this disease, which it will be proper to divide into those intended to abate the fever, and those given to relieve the cough. Venesection has for the first of these purposes been recommended; but it is very rarely requisite, and only when the patient is plethoric, and we apprehend that some vessel may burst in the lungs from the violence of the cough, or when there are symptoms of inflammation. Leeches may in these circumstances be applied to the chest. The most generally useful remedies are laxatives and the saline julap, which often in a few days moderate the fever greatly. The tepid bath is useful, and, if there be much irritation and restlessness, hyoscyamus sometimes does good.

For the relief of the cough, nothing is so beneficial as emetics. These have been given in nauseating doses, so as to make vomiting be readily excited by the cough; but, in general, a full dose of ipecacuanha will be as effectual, and is less distressing. At first, the emetic should be frequently repeated, especially to infants, perhaps once a-day, or once in two days, according to circumstances; and this degree of frequency is by no means injurious. Antimony has been highly praised by many, but it is more apt to weaken the stomach, and in very young children it sometimes produces violent effects. Stimulating substances, such as a combination of soap, camphor, and oil of turpentine; or juice of garlic, or oil of amber, or of thyme, &c. rubbed over the spine, or the thorax and the stomach, have a good effect; and similar applications to the soles of the feet have certainly in some cases done much good. Antispasmodics, such as asafoetida, ol. succini, musk, &c. have been recommended, and in some cases are successful. Opiates are also of service. Dr. Willan says, that he found the watery infusion of opium more useful than any other narcotic. When the disease is

protracted, *cicuta* has been recommended, but it does not seem to have any advantage over opium, or *hyoscyamus*. It has also been applied externally. The most effectual remedy, however, is change of air, which often has a marked effect on the disease in a few hours. When the patient becomes restless, and coughs more, it should again be changed. The diet ought to be light. If there be fixed pain in the chest, difficulty of breathing, and fever indicating inflammation, either venesection or leeches, according to the age and circumstances of the child, will be absolutely necessary; but our evacuation must be prudently conducted. Blisters, and *digitalis* in such cases are useful. Pain produced merely by the violence of the cough, remitting or going at times entirely off, and generally seated about the upper part of the sternum, is relieved by those means which relieve the cough.

When the paroxysms have been very severe, the breathing oppressed, the cheeks livid, and the pulse very weak, some children have been saved by the application of leeches to the chest, blisters, and small doses of the compound powder of *ipecacuanha*.

When the patient is threatened with hectic, or becomes emaciated and weak, nothing is of so much benefit as country air and milk diet, at the same time that we keep the bowels open. Blisters should be applied to the breast, if there be fixed pain or dyspnoea. If there be anasarca swelling, the *digitalis*, conjoined with cordials, will be useful.

Convulsions sometimes are excited by the fits, or occur at the same time with them, and immediately suspend the cough. They are very alarming, and may suddenly carry off the infant, especially if he be very young. The child should instantly be put into a warm bath, which is to be repeated as often as the convulsions come on. The bowels should be opened, the head shaved and blistered. If the fits be repeated, and if the child be plethoric, leeches ought to be applied to the temples. The air ought also to be, if possible, immediately changed. In some cases, tincture of *hyoscyamus* given in a mixture, or clysters containing camphor, seem to allay

the tendency to spasm ; and in every instance, it is proper to rub the back and belly with anodyne balsam.

If the cough return after it has gone off for a time, a gentle emetic is the best remedy.\* A sudden change of weather from warm to cold, is very apt to renew the cough. If the face or lips remain swelled, gentle laxatives are proper.

During the continuance of the disease, the diet must be light, but nourishing, if the patient be weak : but more sparing at first if he be on the other hand plethoric, and inclined to inflammation. Toward the conclusion of the disease, bark and tonics are useful to re-establish the health.

There is a cough very like whooping-cough, and which gives rise sometimes to the groundless fear that the child is going to take that disease ; or on the other hand, if somewhat prolonged, it may pass for whooping-cough ; and afterwards, the child being exposed to infection, takes the disease, and is said to have had it twice. This kind of cough has less of the suffocating appearance than the whooping-cough ; the expira-

\* Like most other contagious diseases, the whooping-cough will run its course in spite of all our exertions to cure it. We can, indeed, do little more than mitigate the more violent symptoms. Among the best of the palliative remedies is a watery solution of asafœtida. Where the cough is attended, as is sometimes the case, with convulsions, the sulphate of zinc may be given with advantage. A combination of the salt of tartar and cochineal, said to have been originally suggested by Dr. Pearson of London, has lately become a very *popular* remedy in this city. This, however, is not the prescription of Dr. Pearson. His is as follows :

R. Carbon. sod : gr. iii.

Vin. ipecac. gtt. v.

Tinct. theb. gtt. i.

Aq. font. ℥j.

To be given to a child a year old every three hours. I have tried both the alkalies but with little success. I am sure that the above mixture derives its efficacy, if it have any, from the laudanum and ipecacuanha which it contains. The tincture of cantharides united with the decoction of bark, and elixir paregoric has been highly extolled by Dr. Lettsom. I have no experience with it. Emetics, on the whole, I think are our best means in this disease. They should be given in the first stage of it, and be repeated at least once a-day whilst the violent symptoms continue. Bleeding and blisters are occasionally useful. C.

tions are fewer, and do not follow each other so quickly, and the inspiration is not performed so rapidly, and with the distinct hooping sound. It sometimes succeeds measles, or appears as a kind of influenza. It is cured by an emetic and anodynes.

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## CHAP. X.

### *Of Catarrh, Bronchitis, Inflammation of the Pleura and of the Stomach.*

INFANTS are subject, as in after life, to catarrh, either common or epidemic. It is attended with fever and inquietude, redness of the cheeks, watery discharge from the eyes and nostrils, disposition to sleep, frequent, and sometimes irregular pulse, panting and shortness of breathing, with frequent cough, which, however, is not severe. It generally goes off within a week, by the use of gentle purges, blisters, antimonials, and, if the fever be considerable, leeches applied to the breast. A hoarse barking cough, is cured by an emetic, and wearing flannel round the throat.\*

Bronchitis is far from being an uncommon disease of infants. It sometimes takes place very early after birth; in other instances not for several weeks. It begins with cough and pretty copious secretion of mucus or phlegm, which, however, the child will not allow to come out of the mouth, but swallows. The cough is frequent, but not uniformly so, coming on in paroxysms. It is of stifled sound, and somewhat hoarse, or occasionally even shrill, from slight inflammation at the top of the windpipe. The breathing is oppressed or rattling, but not permanently so. Vomiting is also not an uncommon attendant, the epigastrium is distended, the stools are generally bad, the face is pale, and the child

\* Blood-letting, and that too pretty profusely, is very often required to cure the catarrh of children, in this country. As it appears here, it is generally a highly inflammatory disease. C.

sick and oppressed. He takes the breast, but dislikes all meat. Presently, if death be not produced by the accumulation of phlegm, the secretion becomes more of a purulent appearance. The respiration is more oppressed, and the noisy breathing is more frequent. The hands, but especially the feet, swell a little, whilst the body becomes emaciated. The cheeks are occasionally flushed in the evening, and the pulse, which was always frequent, becomes still more so, and irregular. The fits of coughing are severe, and attended with appearance of suffocation, and at last the child dies. On opening the body we find the ramifications of the trachea filled with purulent-looking matter, and in some parts there is an approach towards the formation of tubercles. The lungs are sometimes paler than usual, in other instances more solid.

This is a very obstinate disease, but it does not prove very rapidly fatal. In the commencement it resembles common catarrh, and requires the same treatment, purgatives, venesection and a blister. In the advanced stage, and under various circumstances, I have tried emetics, blisters, calomel, and expectorants, but without decided benefit. Blisters, with calomel, combined with ipecacuanha, to act both on the bowels and also as an expectorant, together with a removal to the country, appear to constitute the best practice. I think it right to mention, that though the pectoral disease may be slight, yet by the sickening effect of a purgative, especially castor oil, great panting, paleness, and other appearances of danger, have been produced, which have all gone off after having the bowels opened freely by a clyster, which brought off the purgative.

Inflammation of the pleura is more frequent with children than many suppose. The skin is very hot, the face flushed, the pulse quick, the breathing short and oppressed; there is a cough, aggravated by crying, motion, and by laying the child down in bed. He is likewise more disposed to cough, and is more uneasy on the one side than the other. If not relieved soon, the breathing becomes laborious, the extremities cold, the cough stifling, with rattling in the throat and stu-

por; or the pulse becomes irregular and intermittent, the extremities swell, the countenance is sallow or dark-coloured, the breathing difficult with short cough, and frothy expectoration, which oozes from the mouth. On inspecting the chest, the inflammation is sometimes found to have terminated in hydrothorax, oftener in adhesions. This disease requires venesection, or the early application of leeches to the sternum, according to the age and constitution of the child; the use of blisters, calomel, purges, and the tepid bath. Antimonials and digitalis are also sometimes of service.\* In the last stage, diuretics are proper, especially a combination of squills and digitalis, whilst the strength is to be supported by the breast-milk, or light diet.†

This disease sometimes terminates in abscess and purulent spitting, with hectic; but much more frequently, the pulmonary consumption of infants and children begins, as in adults, more slowly, is marked by a short dry cough, flushings of the face, frequent small pulse, difficult breathing, wasting, and nocturnal sweats.(s) The expectoration is

\* This disease is to be treated exactly as pleurisy in the adult. If the attack be violent, the child will probably require to be bled two or three times. Blisters should not be applied till the disease is somewhat reduced. Previously, they always do injury. The pulse here, will be one of our best guides. C.

† The decoction of the senega snake root is an admirable remedy in this stage of the disease. C.

(s) It may be proper here to observe, that the infantile cough above described by our author, is often dependent on a scrofulous diathesis of the system; this is very fully illustrated and explained by Dr. Parrish, in an interesting paper, inserted in the Eclectic Repertory for January, 1812, entitled, "An Account of the Appcarances on Dissection of several scrofulous subjects, with a few observations on the connexion between scrofula and phthisis pulmonalis." Dr. Parrish has denominated the disease *scrofula interna*, and has found by an accurate examination after death, that not only the abdominal viscera and the lungs are occasionally affected with scrofula, but that even "the heart itself is subjected to this destructive malady." In these cases he supposes that a metastasis, or a translation of scrofula from the external to the internal parts may take place, and that by endeavouring to produce a reverse effect, the internal disease may be palliated or cured.

From the decided effects produced by the discharge from blisters on each

generally swallowed, but sometimes it is ejected, or it is vomited up, and is found to be purulent. There is seldom any cure for this state; all that can be done is to send the child to the country, apply small blisters to the breast, keep the bowels in a proper state, give a mixture containing opium and digitalis, and support the strength with suitable nourishment. If the expectoration be only phlegm, then, although all the other symptoms be present, there is considerable hope of saving the child. But if it be purulent, and the parents are consumptive, the danger is much greater. This state, however, does not in general succeed pleurisy. It is generally induced more slowly, by tubercles, accompanied with enlargement of the bronchial glands.\*

Inflammation of the stomach is not a common disease of infancy, nor is it discovered without considerable attention. There is great fever, frequent vomiting, the mildest fluid being rejected soon after it is swallowed, the throat is first inflamed, and then covered with aphthæ, which spread to the mouth. The child cries much. The region of the stomach is full and very tender to the touch. The bowels are generally loose. If the child be old enough to describe his sensations, he complains of heat or burning about the stomach and throat; if younger, he directs the hand frequently to the

side of the thorax, in checking the progress of the cough, dyspnœa, &c. he thinks it would be eligible at the very commencement of the disease, to endeavour to produce tumefaction and suppuration in the glands about the neck and on the thorax, near the axilla, where external scrofula is generally seated. "Would this attempt, he asks, to excite disease in these parts which [if the expression is allowable] external scrofula chooses for its seat, be more irrational than the application of sinapisms to the lower extremities in irregular or retrocedent gout?" Hence, he seems inclined to think, that the use of setons and issues, have fallen too much into disuse. We would recommend to the student, the attentive perusal of this paper, as justice cannot be done to it in the short and imperfect abstract of a hasty note.

\* Although it is not exactly connected with my present subject, I may mention, that sometimes the bronchial cells are much enlarged, the child has cough and difficult breathing. The air escapes, and passes from the root of the lungs to the mediastinum, insinuating itself betwixt its layers, and thence to the neck, where it produces emphysema. Punctures ought immediately to be made.

stomach and breast. There is sometimes, from the first, a cough and short breathing, but the constant vomiting shows the disease to be in the stomach. It is not easy to say what causes this, for it cannot always be traced to acrid or stimulating substances swallowed. It is proper immediately to bleed or apply leeches to the pit of the stomach, according to the age and strength of the child; then a blister is to be applied, and stools are to be procured by calomel. Fomentations and the warm bath are also useful. M. Saillant recommends the juice of lettuce,\* to be given in spoonfuls every hour, but I do not know any advantage this can have over mucilage and opiates. The disease is uncommon, but when it does occur, is apt to be mistaken for a disordered state of the stomach and bowels, producing aphthæ.†

There is another state of the stomach, which, from the softness of the texture, is apt, after death, to be confounded with gangrene. There are, however, no marks of inflammation; but the stomach seems as if it had become so soft by maceration, that it gives way on being handled. This state is sometimes confined to one part of the stomach,‡ sometimes it extends even to the small intestines, and more than one child in the same family have died of this disease. It is not easily discovered before death, for its most prominent symptoms, namely, purging, with griping pains, occur in other diseases of the bowels. It is, however, very early attended with cold-

\* The juice of lettuce is a very powerful anodyne. By inspissation an excellent opium may be procured from it. If it be useful in the above disease, it is probably owing to its anodyne property. C.

† In all cases of this affection, except very slight ones, bleeding is indispensable. Inflammation in any portion of the alimentary canal runs very speedily to gangrene, which can only be avoided by a pretty free use of the lancet. The pulse here, as in many instances, is a very fallacious guide. We are not to expect to find it much altered. In general, it is lower and more feeble than in health, and this too in proportion to the violence and extent of the inflammation. C.

‡ Dr. Armstrong mentions a case of this kind, where the upper part of the stomach was thus diseased, but the pylorus sound. The stomach was distended with food, but the intestines were very empty, which might be owing to diminished power of contraction in the stomach.

ness of the face and extremities, and the countenance is shrunk and anxious. It affects the intestines oftener than the stomach. This state of the stomach cannot always be attributed to the effect of the gastric juice. When the stomach is acted on by this solvent after death, we find that it is very soft, some of it in a state of semi-solution, the inner surface being dissolved and some of it actually removed, so as to make a hole. When the preparation is put into spirits, and held between the eye and the light, the flocculent appearance of the inner surface is distinct, and numerous globules are seen within the peritoneal coat, which are probably the glands undissolved.

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## CHAP. XI.

### *Of Vomiting.*

VOMITING is very seldom an idiopathic disease of children. Many puke their milk after sucking freely, especially if shaken or dandled. This is not to be counted a disease, for all children vomit more or less under these circumstances. A fit of frequent and repeated vomiting, soon after sucking or drinking, if unattended with other symptoms, and the egesta are of natural appearance, may be supposed to depend on irritability of the stomach, which can be cured, by applying to the stomach a cloth dipped in spirits, and slightly dusted with pepper, or an anodyne plaster. Sometimes a spoonful or two of white-wine whey settles the stomach. If, however, the egesta be sour or ill-smelled, and the milk very firmly curdled like cheese, and the child is sick, it is probable that more of that caseous substance remains, and a gentle puke of ipecacuanha will give relief. On the other hand, should the egesta be green and bilious, gentle doses of calomel will be serviceable, especially after an emetic. The sickness which sometimes precedes vomiting, especially if it be caused by bile, is accompanied with great oppression, pant-

ing, deadly paleness, and an appearance altogether as if the child were going to expire. The relief given in this state, by vomiting, is great and sudden.

Vomiting, connected with purging or febrile disease, is to be considered merely as symptomatic. It is, however, desirable to restrain it, which is done by giving small doses of saline julap, and removing the primary disease. Sometimes the œsophagus is found ruptured in children, and the contents of the stomach poured into the thorax. This probably happens from spasm taking place at the upper part of the œsophagus, whilst the stomach is rejecting its contents.

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## CHAP. XII.

### *Of Diarrhœa.*

WHEN we consider the great extent of intestinal surface, its delicacy, and the intimate connection which exists betwixt the bowels and other organs, we shall not be surprised at the powerful and important effects produced on the system at large, by disorder of the alimentary canal.

In attending to diarrhœa, we must examine the structure of the intestine, and the purposes it is destined to perform. The bowel itself consists of muscular fibres, of glandular apparatus, of nerves and blood-vessels, and of a system of lacteal vessels, which probably do more than absorb, assisting also, by glandular action, in the formation of chyle, which does not perhaps exist in a perfect state in the contents of the bowels. Now, although these different parts tend to constitute one organ, yet they are not so blended in action, that all must be alike affected when the organ is deranged. All may be disordered, but one sooner, and to a greater degree, than the rest. The fibres may be excited to inordinate action, producing rapid contraction, and speedy expulsion of the contents; and this may, or may not be accompanied with spasms and great pain. The exhalents may be greatly af-

fect, producing copious discharge of intestinal secretion, which may be watery, mucous, slimy, or, when the vessels are abraded or open, tinged with blood. The absorbents may have their action impeded, and the chyle is not duly absorbed. The injury of one of these systems of organization not only affects the rest, but this intestinal disease influences parts immediately connected with the intestines, such as the stomach, liver, pancreas, &c. This leads us to consider the contents of the bowels. If the food be good, and the stomach digest properly, the chyme is good and natural. But if the food be bad, or in exuberant quantity, or the power of the stomach be impaired, the chyme is not properly formed, and the food is found in the intestines not thoroughly changed or digested; perhaps little altered in its appearance. If the bowels have the same torpor with the stomach, it is retained, and forms accumulations, ending in great mischief. If the bowels be irritable, as in diarrhœa, it is generally passed speedily. The egesta from the stomach are naturally mixed with the bile, pancreatic juice, and intestinal secretion; and the colour of the compound is yellow or yellow with a brown tinge; and during its passage downwards, a certain quantity of gas, possessing a peculiar smell, is extricated.\* In young infants, however, when they are properly suckled, the stools are somewhat different from their state at a more advanced period. They are of a yellow colour, are something like custard, or are curdy, and have by no means the offensive smell they afterwards possess. If the stools have a very curdy appearance, or are too liquid, or green or dark-coloured, or ill-smelled, they are unnatural. The changes effected in the passage of the chyme are not merely chemical, but dependent on animal action; for the contents of the stomach, mixed with the fluids found in the intestines, and exposed to the same degree of heat, will not form natural-looking fæces, but the substances will simply assume the acetous or putrefactive

\* Both the smell and the colour of the fæces are found to depend greatly on the bile. When the bile is obstructed, the stools are clay-coloured or pale, and have not the feculent smell.

fermentation. If the powers of the stomach and intestines be impaired, then this fermentation goes on to a great degree in the stomach and bowels, much gas is extricated,\* inflation is produced, and the aliment becomes sour or putrid. If too much bile be added, the fæces are green, sometimes dark-coloured. This redundancy of bile may be produced by causes acting immediately on the liver, at least not through the interposition of the intestines, and the bile comes even to be a source of irritation to the bowels, and excites diarrhœa; or the affection of the bowels may influence the liver, and excite it to a greater secretion. Some children are more bilious than others, and are subject to fits of paleness, sickness, and bilious vomiting. The pancreatic juice and intestinal secretion, when not changed in quality, but only increased in quantity, are probably not, like the bile, a source of irritation, but only the produce of it. But these discharges, sometimes mixed with bile, sometimes with blood effused from a small vessel, may accumulate, together with the egesta of the stomach, and form a black, pitchy-looking substance,† which sooner or later produces very bad effects. In other instances, these form a more watery substance, which is passed off with griping, and purging of stools like moss water.

The colour of stools in diarrhœa varies according to the violence of the disease. In slight cases, where the action of the bowels is only increased in degree, but not altered in kind, and the stomach is not injured, the fæces are of a yellow colour, but thin, owing to the increased discharge, and have not run into fermentation. When in children the digestive faculty is somewhat impaired, and the aliment is improper, fermentation goes on more strongly, and the fæces

\* Vauquelin has ascertained, that the stools are always more or less acid. When exposed to the air, they become more acid, and soon afterwards exhale ammonia, which they do till destroyed. The greatest part of the gas extricated in the bowels consists of carbonic acid, with carbonated and sulphurated hydrogen, more or less fetid. In indigestion, the greatest part of the gas is inflammable. Fourcroy's System, &c. Tom. X. p. 75.

† The decomposition of bile by acids, which combine with its soda, furnishes a precipitate, which is thick, viscid, very bitter, and inflammable. This is probably the origin of pitchy-looking stools in some cases, though in others they may proceed from effused blood.

contain more acid than usual, which, although the bile be not increased in quantity, may give them a green colour,\* and the intestines are distended with air. Very green stools, however, imply a redundancy of bile, and the darker the shade of green the greater is the quantity of bile. When the irritation is great and universal, the stools are very watery, and of a dark green colour; or if the irritation be still greater, they are brown; and in either case, if the child be on the breast, portions of coagulated milk are found swimming in the fluid; if not, we have either bits of any solid food taken by the child, or small masses of dark-coloured fæces which had been accumulated in the bowels. When the digestive faculty is almost gone, the stools consist of the aliment mixed with bile. Thus, if the child be drinking milk and water, or be not weaned, the stools consist of green, watery fluid, with clots of milk, streaked with bile. When the irritation is greatest at some particular part of the intestines, it is not unusual for these appearances to alternate with discharge of slime and blood, as we see in intus-susception. When the secretion of bile is diminished, the stools have a cineritious appearance; but this state is not often met with in diarrhœa. Sometimes, when the liver is affected, or the bowels much diseased, the fæces may, among other changes, put on the appearance of pale yolk of egg, or are almost like pus.

Diarrhœa may be injurious in different ways. The increased peristaltic motion of so great a tract of sensible muscular substance, must, like other great muscular exertions, weaken the bowels, and thus the whole body which sympathizes with it. Great debility is often rapidly excited by affections of the intestinal fibres, though there has been little evacuation. Diarrhœa likewise injures the system, by the irritation and great secretion which often accompanies it; add to this the diminution of the powers of digestion, and the

\* All acids decompose bile, and in general produce a green precipitate. Either an unusual quantity of bile, or of acid in the bowels of children, will produce green stools; and stools which are not at first green, often become so in a short time after they are passed.

obstacle afforded to the absorption of the due quantity of chyle, together with the derangement which other parts of the system may suffer, and the disease thus excited, such as convulsions, anasarca, &c.

On inspecting the bowels after death, they are very seldom found in a state of inflammation, but either greatly inflated and relaxed, or with more or fewer intus-suscepted portions. In one case, no fewer than 47 intro-susceptions were found in the same body. On examining these portions, the valvulæ conniventes are found to be rather more prominent than usual, but the parts are not inflamed. Invagination of the intestine is the most frequent cause of fatal diarrhœa, not less than 50 cases having occurred to my brother in the course of his dissections. Intus-susceptio may be produced suddenly, in consequence of spasm, and may occasion great pain, with purging; or it may be caused by acrid purgatives, or those which produce much griping, as senna tea, made by boiling the leaves; or it may take place in diarrhœa when attended with considerable irritation, and it adds to the violence of the disease. It is sometimes accompanied with a diseased state of the glands. In this case there may be a swelling of the external glands, and there is often a tendency to cough. There may be a double intus-susception, and the tumour so formed may lodge in the pelvis and fill it. Inflammation is very far from being a necessary attendant on this state, it is even uncommon.

The diagnostic of intus-susceptio is very obscure, and whatever may be said to the contrary, I believe we have no certain mark by which to judge. It has been discovered, when no previous circumstances led to a supposition of its existence. But in general there is considerable pain, and marks of local irritation; such as slimy stools, with or without blood; sometimes a little frothy slime is passed, sometimes a substance like rotten eggs, and at times the contents of the intestines are vomited. It is attended with stretchings and cryings, as in colic, with occasional attacks of great paleness, like syncope; the belly is tender to the touch, and sometimes in infants the pulse is slower than ordinary. When the dis-

ease continues long, the emaciation is very great, the face resembling the bones, with merely a skin covering them, whilst the eyes are sunk. On the extremities, the skin is lax, and seems much too wide for the bone and muscles. Sometimes the intus-suscepted portion is thrown off, and passes by the rectum.

Dissection likewise shows, that a diseased state of the liver not unfrequently accompanies diarrhœa, and this may be a cause of purging oftener than is supposed. It is to be suspected, when the biliary secretion is most affected and the region of the liver is fuller than usual, when there is cough, frequent fits of sickness, and vomiting or purging of bile. It is most effectually remedied by small doses of calomel.

In some cases, the intestines become very soft, white, or almost diaphanous, and easily torn, and contain a substance somewhat like purulent matter, or thin custard.

Diarrhœa appears under various circumstances, not only with regard to the nature of the stools, but their frequency, the pain which attends them, the duration of the complaint, and the effect on other parts. In some cases the stools are extremely frequent and uniformly so. In others, the dejections come in paroxysms, being worse either through the night or through the day. Some children are gently griped; others are sick, oppressed, and do not cry, but moan. In severe cases, the stomach is very irritable, rejecting the food; but it is not equally so in every stage of the disease, though the stools may be the same in frequency. The appetite is more or less impaired, and in bad cases the aliment quickly passes off, and every time the child drinks it is excited to purge. The mouth, in obstinate bowel complaints, generally becomes aphthous, and the anus excoriated or tender, and it is not uncommon for the feet to swell. Sometimes the child is flushed at certain times of the day, or the face is uniformly pale, and the skin waxy in appearance. In general, if the disease be severe, a considerable degree of fever attends it, and a continued fever in this disease is always unfavourable. The stools may come away with much noise from wind, or may be passed as in health. When

there is great irritation, they are either squirted out forcibly, or come in small quantity, with much pressing. Diarrhœa sometimes proves fatal in 48 hours, but it may be protracted for several weeks, as is often the case when intus-susceptio has taken place. In such protracted cases, the emaciation is prodigious, the face is lank, the eyes sunk, and the expression anxious; the strength gradually sinks, the eyes become covered with a glossy crust, the extremities cold, the respiration heaving, and the child dies completely exhausted.

Diarrhœa may be excited by a variety of causes; such as too much food, or sudden change of the kind of aliment, and hence it is often caused by weaning a delicate child. Attempts to bring up children altogether on spoon meat, some injurious quality of the nurse's milk, improper diet after weaning, the irritation of ill-digested food, redundancy of bile, previous costiveness, dentition, the application of cold to the surface, or a morbid state of the bowels connected with general debility, produced either by bad air or natural delicacy of constitution, are causes of diarrhœa. Those children suffer most who are feeble, puny, or delicate.

As diarrhœa is a frequent cause of death, we cannot be too attentive to its treatment, nor too early in the use of remedies, especially as we find, that if it be neglected in its commencement, it is apt to end in a very obstinate or incurable state. On this account I have been led to consider this disease very carefully, and shall briefly mention the treatment I have found most effectual. When the stools are natural in colour, but more liquid than usual, the frequency moderate, the continuance short, and no fever is present, it will be useful to give small doses of rhubarb, conjoined with an aromatic, taking care, however, that these do not end in producing the opposite extreme, or costiveness. In many cases, the disease will subside of itself; but if it do not abate spontaneously, or by the use of small doses of rhubarb, then it comes to be considered, how far it is proper to check the inordinate action of the fibres of the intestines. This is readily done by an anodyne clyster. But if the diarrhœa have been excited by improper food, or redundancy of food, or if it be attend-

ed with acute fever, and especially if the child be plethoric, it will be useful to give some mild laxative, such as magnesia and rhubarb, or an emulsion containing castor oil, or small doses of calomel. The tepid bath is also beneficial. If there be oppression, with fever or sickness, a gentle emetic will be a proper prelude to the laxatives. Afterwards, if the disease continue, and there be marks of much irritation of the fibres, anodyne clysters will be of signal service.

If the diarrhœa come on quickly, and the stools are from the first green or morbid, and the stomach be irritable, or its functions impaired, we should examine the gums, and cut them if the child be getting teeth. This removes or lessens a source of irritation. But whether the disease be produced by teething, by change of food consequent to weaning, or other causes, great attention is necessary. If the child be sick and oppressed, a few grains of ipecacuanha will be proper; and afterwards small doses of calomel,\* or some other laxative† should be given morning and evening. These carry off the morbid feculent matter, and excite a better action of the bowels. The calomel is usually a most effectual remedy, and it may be given even to infants a few days old. To them a quarter or half a grain, rubbed up with sugar is a proper dose, and may be given morning and evening. To older children we give a grain. If laxatives do not increase the debility and pain, and if they render the stools more natural in appearance, they do good, and may be continued in decreasing quantity, till they are abandoned altogether. But if they merely increase the frequency of the dejections, without greatly altering their quality, the stools

\* That excellent practitioner, Dr. Clarke of Dublin, has strongly advised half a grain of calomel to be given every night, or every second night to infants when troubled with green stools and griping; observing, that in the course of a week or two, the stools become natural, and that it is rarely necessary to give more than from 4 to 5 grains altogether. Mem. of Irish Acad. Vol. VI.

† Cold drawn castor oil may be given in the following form: R. Ol. Ricini, ℥iii; Mannæ, ℥ss; Spt. ammon. Arom. ℥i; Aq. Cassiæ, ℥ss; aq. Font. ℥iss. fiat emulsio. Of this a tea-spoonful may be given as often as necessary.

continuing watery, ill-coloured, and offensive, and the strength and appetite sinking, we can expect no good by continuing them, and must restrain the purging by repeated anodyne clysters, taking care that we do not delay their use too long. When the secretion is copious, and the stools frequent, and perhaps squirted out with great irritation, the strength will sink very rapidly, and a few hours may decide the fate of the child. In such circumstances, it is necessary, even although the contents of the bowels be morbid, to moderate the fibrous and secretory action, by anodyne clysters. Afterwards the morbid matter is expelled, or can be removed by gentle laxatives. Opiates given by the mouth have often a bad effect on the child, and never are equal in benefit to clysters. Cretaceous substances, joined with aromatics, are useful when there appears to be a redundancy of acid; but astringent medicines, such as kino or catechu, though they sometimes seem in slight cases to be of service, yet in more obstinate diseases fail, unless they be combined with opium, and then the benefit is perhaps more to be ascribed to that drug than to their effect; or if given in great quantity, they may perhaps excite to invagination of the intestines. In obstinate cases, small doses of calomel given morning and evening with the use of anodyne clysters at the same time, to keep the purging within due bounds, are of more service than any other remedies, and will save a great number of children; I can speak of this practice with confidence. Dr. Armstrong, however, when the stools are liquid or watery, sometimes colourless or brownish, or streaked with blood, and of very offensive smell, advises antimonial vomits, repeated every six or eight hours, till the stools change their appearance. But this remedy operates severely, and may induce no small degree of debility. If the plan be rejected, he advises a solution of Epsom salts, with a small quantity of laudanum. Dr. Underwood, in this disease, prescribes emetics, then warm purges, and afterwards small doses of ipecacuanha, with absorbents and aromatics.

Dr. Cheyne, in obstinate and prolonged purging, which,

from frequently occurring about the time of weaning, he calls *atrophia ablactatorum*, strongly advises small and repeated doses of mercury, as the most effectual remedy.

When there is much fever, the use of the tepid bath morning and evening, and small doses of saline julap, or compound powder of ipecacuanha, and clothing the child in flannel, will be of great benefit.

In every case, external applications have, I think, a claim to be employed. These consist of friction with anodyne balsam, or camphorated oil of turpentine, or the application of an anodyne plaster,\* to the whole abdomen, which is better. Small blisters in succession, applied to the belly are highly useful. It is also proper to bandage the belly pretty firmly, but by no means tightly, with flannel.

During the whole course of the disease, it is proper to support the strength with light nourishment, such as beef tea, arrow-root jelly, toasted flour boiled with milk, &c.; or if the child be not weaned, it is sometimes of service, in continued or repeated attacks of diarrhœa, to change the nurse. The strength should be supported by small quantities of white-wine whey, given frequently. If the child, as is frequently the case, will not take nourishment, then clysters of beef tea, or arrow-root are to be employed, mixed with a few drops of laudanum. These are of signal service, and ought to be early and carefully employed till the child can take food into the stomach.

When the month becomes aphthous, it may be washed with a little syrup, sharpened with muriatic acid; or borax may be employed, along with the proper internal remedies; and when these restore the bowels to a healthy state, the mouth becomes cleaner. The appearance and disappearance of the aphthæ generally mark the fluctuation of the bowel complaint. The excoriations which appear about the anus

\* Such as the following: R. Saponis, ℥i; Empl. Lytharg. ℥vi; Ext. Cicuta, ℥ii; Ol. menth. pip. ℥ss; Fiat empl. Or R. Empl. resinos, ℥vi, Pulv. opii, ℥i, Camph. ℥ii; Ol. Juniper, ℥ss; Fiat empl. Or if there be much spasm, we may use the Empl. asafœtidæ, Pharm. Edin. with the addition of opium.

require to be bathed with solution of sulphate of zinc, and call for great tenderness in administering clysters.

When the feet become swelled, and the urine diminished in quantity, some diuretic must be added to the other means. The best is the spiritus etheris nitrosi.

If the child become drowsy, or have a tendency to coma, much benefit will be derived from shaving the head, and applying a small blister to the scalp. Affections of other organs, supervening on bowel complaints, must be treated promptly on general principles.

It will thus appear, that the practice in diarrhœa is chiefly confined to the following points :

*First,* To remove every exciting cause, scarifying the gums in dentition, rectifying the action of the liver when it is deranged, and regulating the diet when the quality of the food may be supposed to have disordered the bowels.

*Second,* To lessen sickness and oppression of the stomach by a gentle emetic ; but particularly to remove irritating fæces, and excite a better action of the intestinal surface, by small doses of calomel in prolonged cases, or by a dose of rhubarb and magnesia in recent cases of purging. The circumstances under which the administration of laxatives is beneficial or injurious, have been already pointed out.

*Third,* To restrain inordinate peristaltic motion, and excessive secretion, by anodyne clysters and external applications, neither of which are incompatible with the occasional use of calomel.

*Fourth,* To remove or allay coincident or consecutive symptoms by appropriate remedies.

*Fifth,* To support the strength from the first by suitable nourishment and cordials ; and whenever the stomach cannot receive or retain food, to give nutritive clysters.

## CHAP. XIII.

*Of Costiveness.*

COSTIVENESS is natural to some children,—acquired by others. In the former case, it often happens, that the mother is of the same habit, and in these circumstances, we find that less detriment accrues than in the other; yet even here it is necessary to prevent the costiveness from increasing, as it may excite not only colic, but more serious diseases, such as convulsions, or diseases in the bowels. Some children, of a very irritable habit, have the rectum spasmodically affected at times, on passing the fæces, which may be followed by a convulsion. This being frequently repeated, the child becomes afraid to go to stool, and retains the fæces as long as possible, which induces a costive state. Sometimes the terror is so great, that the child can only be made to pass the fæces when half asleep.

In hereditary costiveness, it is difficult, if not impossible, to induce a regular state of the bowels; and perhaps in some cases, this, if it could be done, would, seeing that it is not natural to the constitution, be injurious to the child. But we must beware, lest, by indulgence, this habit increase. Whenever the child is pale and puny, or dull, and does not thrive, there is risk of convulsions or some severe disease being induced. At a more advanced period of childhood chorea may be produced. Acquired costiveness may be overcome by medicine, and encouraging regular attempts to procure a stool. A variety of means have been employed in these cases, such as suppositories, magnesia, and other laxatives. The best remedy for changing the state of the bowels seems to be calomel, which may be given in a suitable dose, even to an infant, for a day or two in succession, and then omitted; employing in the interim a little manna alone, or combined with castor oil, and sometimes magnesia may be substituted for a change. In more obstinate cases, infusion of senna, or two or three grains of aloes may be given. A

quarter of a grain of ipecacuanha, mixed with sugar, may also be tried. It is also proper to change the nurse, or alter the diet of the child, giving barley-meal porridge, veal soup, ale-berry.(t)

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## CHAP. XIV.

### *Of Colic.*

COLIC is a frequent complaint with children, especially when they are costive. It is often produced by too much food, exposure to cold, irregularities in the diet of the nurse, or some bad quality of her milk. It makes its attack suddenly, and is known by violent screaming, induced without any warning, and accompanied with hardness of the abdominal muscles, kicking, and drawing up of the legs, and often suppression of urine. These symptoms are soon removed by a clyster or suppository, which brings away both fæces and wind. The warm bath, fomentations, and friction on the belly with anodyne balsam or laudanum, will be serviceable; and if the pain continue, two or three drops of tincture of opium, or a rather larger dose of tincture of hyoscyamus, with oil of anise, may be given.\* When the child is costive, a laxative is to be exhibited after the anodyne.

If a child be subject to repeated attacks of colic, a few drops of tincture of asafœtida are useful, and we must always take care to prevent the long continuance of pain, as it may end either in visceral inflammation or convulsions.

(t) Or rye mush and molasses, which is easily procured in every family, and may answer the purpose better than any of the enumerated articles.

\* The anodyne mineral liquor of Hoffman, is an excellent medicine in these affections. C.

## CHAP. XV.

*Of Peritonitis.*

PERITONEAL inflammation, or enteritis, is not an uncommon complaint with children. It begins with violent pain in the belly like colic, but is more constant and continued, and is accompanied with a considerable degree of fever, costiveness, and tenderness in the belly. If this disease do not prove speedily fatal, and if on the other hand, it be not perfectly removed, the child remains long ill, perhaps for some weeks, and the nature of the complaint may for a length of time be mistaken. There is constant fever, but it is subject to exacerbation in the evening. There is increasing emaciation, and occasional attacks of pain in the belly. The stools are usually obstructed, and when they are procured, they are slimy, bloody, ill-coloured, or scybalous. On examining the belly externally, induration may sometimes be discovered. The appetite is lost, the thirst is considerable, the pulse becomes more frequent and feeble, the debility increases, and the extremities become cold, and in this exhausted state, the child sometimes lies for many hours before dissolution. On inspecting the abdomen, the bowels are found adhering, or forming knots, and sometimes the liver partakes of the disease.

In younger infants, the consequences of peritoneal inflammation, when it does not prove rapidly fatal, or excite convulsions, are obstinate slimy purging, vomiting, and increasing emaciation.

In young infants, we cannot carry evacuation far. But whenever there is a prolonged attack of colic, we may apprehend a severe disease, and must use the warm bath, clysters to open the bowels immediately, and then an opiate clyster to allay morbid sensibility; a small blister should be applied to the belly, and if the symptoms be very urgent, this may be preceded by leeches, though these are rarely in infants required. In elder children, the attack is often brought on

by cold, or by eating indigestible substances, as for instance, nuts. No time is to be lost in opening the bowels by clysters and laxatives, and in detracting blood from a vein. Fomentations and blisters are useful. If these means be neglected, or do not succeed, there is little hope afterwards of saving the patient, unless the bowels adhere to the abdominal muscles and an abscess takes place, which is indeed very rare. In the usual state produced by this disease, we have little in our power, except to regulate the state of the bowels, apply small blisters, and support the strength. When abscess has taken place near the pelvis, or about the rectum, the child cries much on going to stool, seems afraid to pass the fæces, and may at the time be seized with spasm or convulsions. The fæces are very offensive, and occasionally purulent matter is discharged. In such cases I have found magnesia useful as a laxative, and hyoscyamus with oil of anise of great benefit as an anodyne. If the appetite be not lost there is hope of a cure, and I have known desperate cases recover.

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## CHAP. XVI.

### *Of Marasmus.*

CONNECTED with, and generally dependent on, a morbid state of the bowels, is the marasmus, or wasting of children. This disease is preceded and accompanied by costiveness, sometimes alternated with a diarrhœa, in which the stools are fœtid, or unnatural in appearance. It begins with lassitude and debility, loss of appetite or depraved appetite, fœtid breath and fœtid stools, tumid belly, pale leucophlegmatic countenance, with swelling of the upper lip. Presently fever supervenes, the countenance becomes at times flushed, and the skin hot and dry, with frequent pulse, thirst, restlessness, picking of the nose, and disturbed sleep, in which the patient grinds his teeth and starts. The debility gradually increases, and if relief be not procured, death, preceded by great

emaciation, takes place. This disease is most frequent with those who are fed on improper food, or eat many raw roots, or much unripe fruit; or those who have the digestive faculty impaired by confinement, bad air, or neglect of the bowels. It very often is considered as produced by worms; but these, although they may often exist in the bowels, are by no means essential to the disease.

This disease may, in the commencement, and before the appearance of fever, be arrested by a course of active purges, given at proper intervals; at the same time that we give light nourishing diet, and inculcate the necessity of exercise in the open air. In the febrile stage, the cure is more difficult, but is to be accomplished on a similar principle, by attending to the state of the bowels. For this purpose, purgatives must be frequently repeated, especially calomel; and here it is necessary to remark, that the stools are not always hard; they are often fluid, but generally fœtid, and dark in the colour, or appear to contain indigested food. A course of purgatives, however, by degrees procures discharge of fæces of natural appearance. Whilst this course is conducting, the strength is to be supported by proper diet, and the prudent use of wine. The power of the stomach may be increased by chalybeates or other tonics, provided these are not nauseated by the patient. After recovery has taken place, we must, by very gentle laxatives, preserve an open state of the bowels, which will prevent a relapse. Sea-bathing is likewise of advantage.

The state of the bowels which gives rise to marasmus, sometimes produces speedily more acute symptoms. These constitute a very frequent species of fever, which we shall afterwards consider.

## CHAP. XVII.

*Of Tabes Mesenterica.*

TABES mesenterica, or hectic from disease of the mesenteric glands, is a very frequent disease. It is not often met with before the time of weaning, nor after puberty, seldom after the age of eight or ten years. The disease consists in enlargement of the mesenteric glands,\* which are sometimes universally affected, but are especially enlarged into a hard mass about the root of the mesentery. These tend slowly to the formation of a cheesy substance, but death may take place before that process be accomplished. The commencement of the disease is slow and obscure; the patient complains of little or no pain, but is subject to an irregular state of the bowels; is either costive, or passes dark loose fæces; is unhealthy in his appearance, and liable to occasional attacks of fever. The urine is white or turbid. The appetite is not much diminished, and digestion goes on; but the belly is hard, and somewhat tumid. The child is more fretful than usual, and sometimes, especially if very young, is troubled with vomiting. This is the incipient stage, and resembles very much that of marasmus, proceeding from affection of the bowels, independent of diseased glands. As the disease advances, the body wastes away, the face is pale, and the features become sharp, the abdomen gradually enlarges more, and the patient complains of lancinating pains, of short duration however, within the belly, or near the back. The stools are now sometimes bound, but oftener loose, frothy, and mixed with bile; occasionally the patient has diarrhœa, with vomiting. The fever, which at first is obscure and intermitting,

\* This state is sometimes accompanied with swelling of the thymus gland, and the lymphatic glands of the neck. Swelling of the thymus gland, by pressing on the trachea and œsophagus, produces difficulty of breathing and of swallowing, and sometimes suffocation. By pressing on the subclavian vein, it obstructs the passage of the chyle, and may thus excite disease in the mesenteric glands. Blisters applied to the top of the sternum sometimes do good.

becomes more acute and distinct, with exacerbation in the evening, attended with restlessness and acceleration of the pulse, which rises to 120 strokes in a minute, or even more. The patient is listless, and his mind becomes gradually inactive, though he does not lose hopes of recovery. The tongue is generally clean, but sometimes covered with a white or brown crust, especially in the middle; and in an advanced stage, the whole mouth and throat become aphthous. The thirst is trifling, but the appetite is usually impaired, and a short cough supervenes. As the disease proceeds, the emaciation of the body increases, the eyes are sunk and glossy, the nose sharp, and apparently elongated, the face sallow, but the lips are sometimes florid, and the cheeks flushed at night. The abdomen is hard, and sounds like a drum when struck upon, or if not very tense, knots may sometimes be felt within it.\* The urine is lessened in quantity, and it often deposits a white or lateritious sediment, the feet swell, and during sleep, the forehead, scalp, and sometimes the breast, are covered with a profuse sweat, whilst the rest of the skin is hard and dry. The progress of this disease is not always alike rapid. In some cases, the patient lives for a year or two in bad health; but in general, after hectic has appeared, a few months, sometimes weeks, cut him off.

In the commencement of this disease, the steady and repeated use of mild purges of calomel, conjoined with some light bitter infusion, decoction of bark, tonic medicines, and gentle friction over the belly continued for a considerable length of time, morning and evening, would appear to be of more service than any other plan of treatment. It has been proposed to give calomel in small doses, as a mercurial; but it does not appear to have great efficacy, and is chiefly of use, in so far as it acts as a gentle purgative. Copious evacuations in this disease are not required. It is sufficient that the bowels be brought into, and kept in a regular state, which, in the incipient stage, at least, sometimes re-

\* Sometimes a hard tumour may be felt within the belly, pretty early in the disease. It is often felt in the right side, near the origin of the colon.

quires pretty strong doses. But in the confirmed and advanced stage, stools are easily obtained; and from the loose state of the bowels which often prevails, it comes to be a question, how far laxatives are proper. Upon this important subject, I observe, that these medicines ought not to be severe, but gentle, and given frequently, provided they have the effect of diminishing the tumour of the belly, making the stools more natural, and do not impair the strength. The lax stools which take place in this disease spontaneously, never abate the tumefaction; but a gentle course of laxatives often does, and this is a most favourable effect. Farther, if the paroxysms of fever be severe, and early in their appearance, we find it necessary to use purgatives more freely than in opposite circumstances; evacuation by stool being in such cases advantageous. In the confirmed and advanced stage, it is sufficient that such a dose of calomel be given every night, or every second or third night, as shall keep the bowels open if disposed to be costive, or, if loose, make the stools more natural in their appearance than they would be without the administration of medicine. We must, however, take care, that the mercury do not excite much effect on the constitution, lest debility be increased; it is therefore prudent, sometimes to combine the calomel with rhubarb, or to employ a little castor oil emulsion. Along with this plan, we may, in every stage of the disease, derive advantage from the use of tonic medicines, such as bitters and chalybeates, especially in the form of mineral waters. But the last are to be used cautiously, if there be marks of inflammation existing in the glands; and in such cases, some light bitter infusion is preferable to chalybeates. In such circumstances, the laxatives are to be used more freely, the tepid bath is to be employed, and the belly rubbed freely with anodyne balsam. Gentle exercise in the open air is of great service, and it is useful in the early part of the disease to reside near the sea; but if the glands seem to be in a state of inflammation, discovered by shooting pains with fever, the patient must not bathe; and indeed, at all times, the utility and safety of the cold bath seem to be doubtful, except when the disease is so

far removed, that we have chiefly to contend with debility. The warm bath is more generally useful. The diet should be light and nutritious, but all stimulating and indigestible substances must be avoided. If an inflammatory state exist, milk in different forms, soft-boiled eggs, and vegetables, are proper. If no inflammation be present, some animal food will be of service; nay, as in other scrofulous affections, a very considerable proportion of animal diet is sometimes beneficial, in preventing the tumour from inflaming and forming a cheesy substance, or in giving a favourable turn to the action, when the acute state of inflammation has abated, in those cases where it is met with, for it is by no means an universal occurrence.

In the latter end of the disease, little can be done except palliating symptoms, and supporting the strength by soups and a little wine. Diarrhœa should be restrained by anodyne clysters.

Cicuta, burnt sponge, and some other medicines, have been advised in this disease, but I cannot say that they have been employed with advantage. Electricity is sometimes of service.

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## CHAP. XVIII.

### *Of Worms.*

WORMS exist in the bowels, perhaps, of every child,\* but especially in those whose bowels are debilitated by bad management, or by acute disease; and hence, in the end of disease, or after recovering from such illness, worms are often expelled, both by children and adults. Worms are of different kinds, but infants are chiefly infested with lumbrici and ascarides, the tænia being rarely met with until children are four or five years old. We also sometimes meet with some uncommon species of worm, which are ejected by vomit-

\* Worms rarely appear in the bowels, till after the child is weaned.

ing, and some lususes have been passed by stool; thus, for instance, I have seen a worm about three inches long, having two large flat heads, with two bodies, separated for a little, and then united in a common trunk, ending in a tapering tail. Insects of different kinds may also be introduced accidentally into the stomach and bowels, and live there for some time.

*Ascarides* generally occupy the rectum, producing much itching in that part, so that sleep is often prevented. The irritation causes indigestion and pain in the belly, with picking of the nose and white face, a variable appetite, and sometimes a desire for indigestible substances. The worms are discovered in the stools like small white threads, and occasionally they creep out from the rectum. The stools are often slimy or mucous. This kind of worms is removed by injections of aloes mixed with water, or any strong bitter infusion containing salt in solution,<sup>(u)</sup> or the common turpentine injection; lime-water and olive oil also sometimes destroy them, but cannot be depended on. Calomel purges are proper likewise; and any disordered state of the alimentary canal, which exists, is to be treated on general principles.

The *ascaris lumbricoides* is often from six to ten inches long. In its general appearance it resembles the earth worm, but differs from it, in having, besides other distinctions, a longitudinal line on each side, whereas the earth worm has three lines on the upper surface. It dies soon after its expulsion, but when alive, it moves like an eel, and does not shorten the body like a worm. Dr. Hooper, in the 5th vol. of the *Mem. of Med. Soc.* has a valuable paper on intestinal worms. *Lumbrici* may exist in every part of the alimentary canal, and frequently are ejected by vomiting, as well as by stool. The symptoms are those of intestinal ir-

(u) Dr. Kuhn of Philadelphia, whose experience has been very extensive, and whose correct and discriminating judgment is unquestioned, says he has found no article so useful in the destruction of *ascarides*, as injections of a solution of common salt. Vide Barton's Edit. of Cullen's *Mat. Med.* Vol. II.

irritation,\* pains in the belly, frequent attacks of diarrhœa, variable, and often voracious appetite, the child sometimes becoming hungry almost immediately after having ate heartily, fœtid breath, pale complexion, tumour of the lips, with livid circle round the eyes, swelling of the belly at night, and disturbed sleep, the child occasionally awaking in a great terror, and being liable to starting and grinding of the teeth. When awake, he picks his nose, is plagued with temporary head-ache, sometimes has a dry cough, with slow fever, or convulsive affections. I have already pointed out several diseases proceeding from disorder of the bowels, and these may arise from worms, in as much as they are capable of irritating the bowels, or injuring their action, or increasing such a debilitated state, as may have predisposed to their accumulation. A variety of anthelmintics have been advised; for an account of which, I refer to the writers on the *Materia Medica*. Sulphur, tansy, aloes, spigelia marylandica, dolichos pruriens, the gœffrea, worm seed, tin powder, filings of steel, &c. have at all times a good effect; but in general, calomel purges given repeatedly and liberally, provided the constitution of the patient will bear them, will be found very effectual; or these may be alternated with saline purgatives, oil of turpentine, or suitable doses of aloes or jalap. In obstinate cases, much benefit will be derived, by giving a regular course of purgatives so as to keep up a constant but gentle effect on the bowels. After the worms are expelled, a bitter infusion, or chalybeate water, will be useful to strengthen the bowels, or these may even be employed whilst we are using the purgatives.

The trichuris, or long thread worm, is about two inches long, and two-thirds of this form a tail like a hair. The body is about the 16th of an inch thick, and the worm is white

\* Hence it is not easy to say that worms are the cause of a child's complaint, for other morbid affections of the bowels produce the same symptoms. A course of purging removes these symptoms, without bringing away any worms; although the slimy appearance of the stools is attributed to the worms being dissolved.

like the ascaris. It is found in the rectum, and also higher up, even in the ilium.

The tænia consists of many flat jointed portions, and is divided into the T. Solium, where the orifices are placed on the margins of the joints, and the T. Lata, where they are found in the surface. The usual symptoms are produced. The best remedies are smart purges of calomel, alternating with doses of oil of turpentine proportioned to the age; a desert spoonful may be given to a child of four years of age.(x) The tænia is more difficult to be removed than other worms.

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## CHAP. XIX.

### *Of Jaundice.*

THE jaundice of infants is a disease attended with great danger, especially if it appear very soon after birth, and the stools evince a deficiency of bile; for we have then reason to apprehend some incurable state of the biliary apparatus. I conceive that there are two species of this disease, which are very opposite in their nature. In the first, there is an obstacle to the passage of the bile into the intestine, the child is costive, and the meconium is paler than usual, and after it is removed, the stools become light-coloured; the skin, very early after birth, becomes of a deep yellow colour, which extends to the eyes. The child sucks very little, has occasionally a difficulty in swallowing, is languid, becomes emaciated, moans much, is troubled with flatulence, sometimes with cough and phlegm in the trachea, or vomiting, convulsions, colic, and fever, occasionally supervene. In some cases, the liver is felt enlarged, and the hypochondrium is tumid. The water is very high-coloured. This disease

(x) Oil of turpentine has been given to infants in smaller doses, measured by drops, for the other species of worms with success. It may certainly be considered as a powerful anthelmintic. The reader is referred to other cases illustrating its effects in the expulsion of tania, to Eclectic Repertory, Vol. I. and to Medico-Chirurgical Transactions, Vol. II.

often proves fatal in a week, but it has been known to continue in variable degrees of violence for a considerable time, and at last to disappear, though such children continue long delicate. With regard to the cause of this disease, we find, that sometimes it consists in obstruction of the hepatic duct, or ductus communis, either by thickening of the coats, or pressure, in consequence of enlargement of some part in the vicinity of the duct; or it may consist in imperforation of the duct. Sometimes it proceeds from temporary obstruction of the duct, owing to viscosity of the bile. Now some of these cases are irremovable, others are not; but as we cannot *a priori* say what the cause may be, in any particular instance, we must use the means of cure in every case. The most likely remedies for removing this disease, are gentle emetics, given very early and followed by the exhibition of half a grain of calomel, morning and evening, till the bowels are acted on; or we may give this medicine even three times a-day, in some cases; but we must be cautious not to induce much purging, or push the mercury far, lest we bring on fits.

The second species differs from the first, in the stools being dark-coloured or green, showing that there is no obstruction, or at least no permanent obstruction, to the passage of the bile.\* Like the first species it appears soon after birth, and is accompanied with great oppression, moaning, colic, and convulsive affections. It is attended with much danger, and frequently carries off the infant in a few days. The early use of calomel would appear to be the most proper practice, and the strength must be supported in all those cases by the breast milk, given with the spoon, if the child wont suck, and small doses of white-wine whey.

Jaundice, appearing at a considerable time after birth, does not require a separate consideration here, nor is it a very common occurrence.

\* It is in this species alone that the opinion can be admitted, that infantile jaundice depends on absorption of bile from the intestines.

## CHAP. XX.

*Of Diseased Liver.*

ENLARGEMENT and inflammation of the liver are not uncommon in infancy and childhood, but the first is most common in infancy. It is productive of vomiting, oppressed breathing, cough, fever, and sometimes purging. The liver can be felt enlarged, and extending lower down, or more to the left side than it ought to do, which will distinguish this complaint from inflammation of the lungs, which is also not so frequently attended with vomiting.\* I cannot say much that will be satisfactory respecting the treatment. Mercurial friction is chiefly to be relied on.†

Hepatitis in infancy is marked with the symptoms attending enlargement of the liver; but there is more fever, and sometimes pain, when the liver is pressed on. The disease often begins with symptoms of disordered stomach, and colic pain. Fever comes on, accompanied with cough, which is sometimes soon succeeded by jaundice. The stools are often like yolk of egg, or, if there be obstruction to the passage of the bile, they are clay-coloured, and the urine red, with much sediment. On inspecting the body of infants who have died of this disease, the surface of the liver, sometimes only its convex surface, is often found of a deep red colour, with an exudation of white lymph, exactly resembling the cuticle of a blistered part. Betwixt the liver and diaphragm, we find white flaky fluid, something like pus, and similar matter is often found among the bowels, mixed with pieces of fatty-looking lymph. The liver is not necessarily enlarged, nor

\* On examining the liver, it is sometimes found soft, and not much altered in structure, sometimes hard, and almost cartilaginous, with the pori biliari, hardened and obstructed, so that secretion of bile does not take place, and the gall bladder becomes shrivelled. This state cannot be attended with jaundice.

† Active mercurial purges I have found useful in this stage of the disease, after which, small doses of calomel should be given morning and evening for some weeks. If there be pain, leeches should be applied to the side. C.

its substance affected. The stomach and bowels are not inflamed, but sometimes have a white blanched appearance, and contain a fluid like thin custard. The bile is not changed in its colour. In some instances of chronic inflammation, the liver is somewhat enlarged, of a dark colour, and the veins turgid. Blisters, laxatives, and a gentle course of mercury are the principal means of cure. In older children we find hepatitis to commence either acutely or slowly. When it begins acutely, the child probably after a surfeit, or some irregularity of diet, or exposure to cold, complains of severe pains in the upper part of the belly, like colic, accompanied with sickness and vomiting; and either attended, or soon succeeded by fever, short cough, and pain, sometimes dull, sometimes sharp in the right side, and occasionally affecting the shoulder. Jaundice also, not unfrequently, is produced and lasts for a few days. There is thirst, no appetite, but the child feels continually as if he had ate too much, is subject to fits of squeamishness, and complains when the liver is pressed. If the remedies do not check the disease, the liver enlarges, and its region is full; abscess is formed, attended with irregular chilliness, hectic symptoms, and much pink-coloured sediment in the urine. In a few weeks, sometimes in a shorter period, the patient is sensible of a smell like rotten eggs, which he thinks comes from the stomach; then a little fœtid matter is coughed up, which is followed by copious expectoration; or he ejects pus as if he vomited it from the stomach. The cough and spitting, with hectic symptoms continue long, but at last decline and go off.

In the early stage, blood-letting, if instantly resorted to, may be of service, but not if delayed. Blisters are always proper. The bowels should be freely opened, and afterwards a gentle course of mercury employed. In the suppurating stage, mercury should not be used, but the strength is to be supported by proper diet. In the expectorating stage, the same plan is necessary, with the use of tonics, such as chalybeates joined with myrrh, and occasionally opiates. A speedy removal to the country, if the weather is mild, is advantageous. Sometimes the abscess bursts into the sto-

mach or intestines, adhesion previously taking place; or, I have known it burst into the general cavity of the abdomen, and the matter accumulate there, forming a tumour like ascites, bursting at last by the navel, which inflamed; or it has been drawn off with a trocar, and recovery has been accomplished.

The more slow or chronic species may be excited by a torpid state of the whole chylopoetic viscera, consequent to neglected bowels, or other causes; or it may occur after some other disease, such as peripneumony, scarlatina, &c. The child has fits of sickness, vomits bile in the morning, and loses his appetite; or if he has a strong desire for particular kinds of food, or feels very hungry at times, he either cannot eat when he receives food, or is instantly filled. The strength diminishes, the bowels are torpid, and the stools white, in some cases bilious, or dark and offensive; in others there is a constant dry cough, and inclination to hawk or spit, the pulse is frequent, the upper part of the belly becomes swelled at night, but there is little or no pain in the region of the liver; if any be felt, it is rather referred to the bowels. By and bye considerable pain, like colic, is felt near the stomach, especially at night, and that part of the belly is then swelled, but towards morning it subsides. On examination, however, the hypochondriac region is felt full, and the liver can be perceived extending towards the left side, and pain, and sometimes sickness, are produced by pressure. The urine is high-coloured, the feet swell at night, and the face has a slight hectic flush. If the disease be not checked, it goes on to suppuration, producing distinct hectic fever, terminating in death, if the matter be not discharged; or, it may be, irritation proves fatal, even without suppuration. Repeated blisters, laxatives, and mercurial inunction are the remedies, with diuretics, if there be dropsical symptoms.

The spleen is frequently enlarged, and sometimes contains tubercles. I do not know any other diagnostic symptom, than the belly being tumid and hard in the region of the spleen; frequently a cough attends this state. Mercurial lax-

atives, and blisters, are the best remedies, but most cases I have met with have proved fatal.\*

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## CHAP. XXI.

### *Of Fever.*

FEVER is a frequent disease in infancy and childhood, but it is generally symptomatic, or produced by some local irritation. Typhus fever is extremely rare in infancy, but it sometimes is communicated to children a few years old. It is known by our evidently tracing the channel of infection.† The child at first is languid, pale, chilly, and debilitated, the appetite is lost, the head becomes painful, the skin hot, the tongue foul, the eye dull, or suffused, and the pulse very quick: and if a favourable crisis be not procured, great oppression, succeeded by stupor, precedes death. In the course of the disease, the bowels are generally bound, the stools fœtid, and the urine thick. It requires the early use of emetics in the cold stage, succeeded by saline julap. If the hot stage, however, be fully established, and the heat considerable, the affusion will be of advantage, succeeded by calomel purges and saline julap, with light diet, and the use of ripe fruit. A free circulation of air is of essential benefit. The skin, in the course of the disease, especially among the poor, should be sponged daily with tepid water, and the bed-clothes, if possible, changed frequently. If the head be very painful in the first stage, the application of leeches to the forehead and the use of laxatives will be useful. If pain continue, or stupor, or constant drowsiness supervene, blis-

\* I pursue here the same mode of treatment as in enlargement of the liver. Exercise, and especially swinging, is useful. Compression of the abdomen by a flannel bandage is also beneficial. C.

† Many of the fevers of children, not at all originating in contagion, soon run into the typhus form. This, therefore, can hardly be considered as a diagnostic. C.

ters will be proper. The strength, in the latter end of the disease, is to be supported by the prudent use of wine. Cough in general requires blisters to the breast, with squill vinegar.

The most frequent fever, however, excluding those accompanied with eruptions, is the fever from irritation, which, although it may proceed from various causes, is essentially the same in its nature, and the indications of cure. It has of late years been described under the name of the infantile remittent fever, though the fever so described belongs to childhood, rather than infancy. It will be useful to divide the fever, at present to be considered, into that variety which occurs in early infancy, and that which takes place in childhood. With regard to the description of the first variety it is very similar to the early stage of hydrocephalus, but the remissions are more distinct in the morning, and the exacerbations greater in the evening. The pulse is very quick,\* the skin hot, the mouth warmer than usual. The child is at first fretful, restless, costive, and inclined to vomit; then he becomes more oppressed, and in some cases has slight cough, with increased secretion of phlegm in the trachea; perhaps, he does not for hours lift his eyes, till the remission comes, when he looks up, and attends to the objects presented to him for a short time. He sucks in general freely, and sometimes bites the nipple, and very often aphthæ appear in the mouth. The bowels are irregular, but whether the stools be frequent or seldom, they are generally green or brown, and offensive. The urine is usually high-coloured and scanty, and sometimes the feet swell a little, and very often become cold. If the disease prove fatal, it is generally attended, in the end, with symptoms of effusion into the ventricles of the brain, or the infant is exhausted gradually by the continuance of the fever, or more quickly by the accession of obstinate diarrhœa. A favourable change takes place, sometimes about the fifth day, sometimes later, the child looking up for a

\* In the early stage of hydrocephalus, the pulse is more irregular, and often beats alternately quick and slow, for two or three pulsations.

longer space of time than formerly, and seeming more free from sickness. After this, the symptoms subside, and the strength is gradually restored. It is very common to find, that at this time, one or more teeth have made their appearance. In many cases, the fever may proceed from affection of the bowels; but frequently it is caused by dentition, the irritation in the jaw operating either alone, or in connexion with a morbid state of the bowels. In this kind of fever, the gums should be carefully inspected, and, if necessary, cut. Small doses of calomel should be given morning and evening, mixed with magnesia, to prevent costiveness, or to evacuate irritating fæces. A few drops of tincture of hyoscyamus, with a saline julap, may be given occasionally to abate irritation. The tepid bath should be employed once a-day, when the exacerbation takes place, and the strength supported by the breast milk or beef tea. If the child be plethoric, a leech should be early applied on the forehead; and if a favourable crisis do not soon take place, the head ought to be blistered. In some cases, although the acute symptoms go off, the child does not recover, but remains fretful, languid, and emaciated. The eyes are suffused, the feet swell, and the stools are not regular nor natural. In some instances, tumours of the mesenteric glands seem to be excited.

The remittent fever of older children is met with from the age of two or ten or twelve years, and is generally found to be produced, either speedily after eating some improper substances which have not been immediately removed from the stomach or bowels, or gradually by the induction of a costive state, or the accumulation of irritating fæces in the bowels. In the first case, the fever attacks suddenly, sometimes through the day, but generally at night, and the child is sick, pale, very restless extremely hot, disturbed in the sleep, and thirsty. Sometimes he vomits, or complains of head-ache, or pain in the belly. The tongue is at this time tolerably clean, but next day it becomes furred, and the fits of vomiting or sickness are pretty frequent. They are generally preceded by head-ache, which goes off or abates after throw-

ing up. If this disease be attacked immediately with an emetic, followed in the morning with a smart purge, the health is soon restored; but if the remedies be delayed till the next day, I have generally found, that although the emetic, with purging, mitigate the disease, it does not arrest it speedily, but notwithstanding the regular use of laxatives with diaphoretics, it continues for several days. Emetics and purgatives, in this disease, generally bring off some half-digested substance, such as almonds, orange peel, &c. It is astonishing how torpid the bowels sometimes are, large doses of medicine, either producing no effect, or lying for some time inactive in the stomach, they are then vomited. In such cases, strong clysters are proper to assist the physic.

In the second case,\* the attack is often more gradual, the child being for several days somewhat feverish and unwell. The pulse is frequent, and, in the course of the day, he has several attacks of feverishness, during which he is dull, and disposed to sleep or lie down; but these do not last very long, and in the interval he seems tolerably well, but is easily put out of temper, and complains when lifted or touched, though he be not hurt. The appetite is not steady, he has little thirst, and the tongue is clean. The bowels are sometimes very open, but oftener bound. These symptoms appear more or less distinctly for about a week, though sometimes not so long. Then an acute paroxysm of fever takes place, preceded by shivering, and attended generally by vomiting. The pulse becomes much more frequent, sometimes 140 in a minute. The cheeks are flushed, and the patient is very drowsy, but complains of little pain in the head, or indeed any where, except occasionally in the belly, which may at times be very severely pained, or if he complain of headache, it is evidently from his stomach, for it is followed by sickness or vomiting. The fever does not continue alike severe during the whole of the day; it remits a little, but not at very regular hours. The exacerbation which usually occurs in the afternoon, is generally accompanied with drow-

\* This is commonly called a worm fever, although worms are not necessarily passed in this disease.

ness. Very soon after the attack of fever, the tongue becomes covered with a white or brown coat, and both the stomach and the bowels seem to be extremely torpid. The appetite, indeed, is soon almost totally lost, or the food which is taken is not digested. The bowels are generally, but not always costive; and the stools are fœtid, dark-coloured, sometimes like pitch, or thin and olive-coloured, or green and curdy-looking, or clay-coloured, indicating a deficiency of bile. This last state sometimes alternates with too copious secretion of bile. There is a great desire to pick the nose and lips; and if the child be not watched, sometimes an ulcer is thus produced upon the lips or angle of the mouth.

The face is flushed during the exacerbation; but, except at this time, it is pale. The eyes are dull and white; though sometimes, in the course of the disease, they are unusually clear. Generally, delirium occurs in the advanced stage of the disease, and in some cases it is difficult to keep the child in bed. From this state, however, he can usually be recalled for a few minutes, and will then answer questions distinctly. If the debility be considerable, the countenance becomes vacant, the child picks at the bed-clothes, and though he does not speak much, makes a constant inarticulate noise. In some instances, convulsions have taken place; but these are rare, and are chiefly met with in young children. Sometimes the stools are passed in bed, without any intimation being given. This disease runs on for a week or two, or even for several weeks, and may at last destroy the patient by debility; an event which will take place earlier, if the proper remedies are not employed, than if they be, even although they may ultimately fail. In general, success attends their use. Tumefaction of the belly, with great and constant fever, are very unfavourable.

In mild, but protracted cases of this fever, the patient perhaps is confined to bed only part of the day, and becomes cheerful in the afternoon. The stools for a day or two improve, and then become very offensive; the appetite returns soon, but the fever, emaciation, tumour of the belly, and other symptoms, may continue for several weeks.

This fever bears a very considerable resemblance to hydrocephalus. But in hydrocephalus there is a more frequent vomiting, and as often a tossing of the hands above the head as picking of the nose or lips. There is pain of the head, which is wanting, or if it occur early, it is, in this fever, in paroxysms connected with sickness, or affection of the stomach. There is screaming and strabismus, and often a more constant delirium, from which the patient cannot be roused, after it has continued for some time; and convulsions are accompanied with great injury of the mental faculties. There is in general, in this fever, more complete remission of the symptoms at some time of the day than in water in the head, the pulse not only being slower, but the child more lively and easier. The stools are more fœtid and darker than in hydrocephalus, in which they are often thin and bilious, and sometimes glossy. The pulse in hydrocephalus is more irregular, and, in the second stage, usually becomes slow and intermittent. It must, however, be acknowledged, that, in some instances, it is very difficult to make the diagnosis, especially if we have not attended the child from the first. I have had the happiness of seeing children recovered from situations apparently desperate, when there was every reason to fear that the disease was water in the head, though the result proved the contrary. Fortunately, in all such ambiguous cases, the exact diagnosis would be of more consequence in determining the prognosis than the treatment. For, in these circumstances, the application of blisters to the head, the use of laxatives, and supporting the strength, are the means to be chiefly resorted to in both diseases.

It appears to me, that this disease proceeds at first from a deranged state of the stomach and intestines, which very soon is communicated to the liver and lacteal system, but perhaps still more early affects the action of the nervous and vascular systems. The treatment in this view, will consist in employing such means as excite brisker action of the stomach and bowels, such as purgatives, and improve the nature of the action, altering the morbid into more natural action, as mercurials and afterwards tonics. At the same time, that these

remedies are directed to the original cause, it is proper to employ such other means as the particular state of the nervous and vascular systems may require, especially such as operate on sensation and secretion, as heat, cold, blisters, opiates, diaphoretics.

It is generally proper to begin the treatment of this disease, on its first attack, with an emetic, which is to be followed with a purgative. In some cases, the usual dose of the purgative will prove effectual; but oftener a much larger quantity must be given. We cannot *a priori* say what quantity may be necessary to procure stools. Usually, it is greatly beyond what any one who has not seen much of this disease would expect. Senna tea answers the purpose very well; or if the child can swallow pills, the aloetic pills stay well on the stomach, and, if given in sufficient number, act excellently on the bowels. Clysters are of great benefit. It is useful to purge the bowels freely at first; but after this, it is not proper to give so much medicine as will operate briskly.\* It is requisite, however, to give regularly such doses as shall keep the bowels open, and support their action. When the stools are loose, purgatives are still proper, in prudent doses, to evacuate them; for they are not natural in their appearance, and injure the action of the intestines. Suitable doses of calomel, or castor oil emulsion, or infusion of senna, or aloetic pills, will presently bring the stools into a more natural state. This is a very important part of our practice, but not the whole of it, for we know well, that removing the cause of fever does not always remove the fever itself. We should, therefore, besides using laxatives early, and continuing their exhibition during the disease, as long as these bring away offensive stools, and do not increase the frequency of the pulse or debility, have recourse, in the commencement of the fever, to the use of the sponge, with cold water to moderate the heat. This is to be repeated oftener or seldomer, ac-

\* Dr. Pemberton judiciously remarks, that if strong purges are given, the intestines are apt to become distended with air, and the patient is destroyed with tympanites. Practical Treatise, &c. p. 165. It is worthy of remark, that dissection often discovers nothing but great inflation of the intestines.

cording to the benefit it produces. Afterwards we employ saline julap, with a little antimonial wine, and, in the more advanced stage support the strength with regular and cautiously-proportioned doses of wine. Such, the wine excepted, is the practice during the first two or three days of the fever. Afterwards, we ought to give calomel combined with antimonium calcarco-phosphoratum, in such doses, as both to act on the bowels, and likewise to produce an alterative, or slightly mercurial effect. It is, however, surprising how difficult it is to affect young people in this way, or produce any tenderness of the gums. Along with this medicine, we may also employ occasionally other purgatives, and foment the belly when it is pained or much distended. Opium and hyoscyamus frequently allay irritation, and accelerate recovery, by procuring sleep. Anodyne clysters are useful in this respect, and also for abating griping or abdominal pain. Pain in the side, if not abated by rubbing with anodyne balsam, requires a small blister. Delirium is sometimes, but not always, mitigated by blistering the head; but this is uniformly proper when there is considerable delirium, or any pain in the head. Shaving the head, and merely washing it with vinegar, has also a good effect. The diet should be light, but it is not proper to force the patient to eat. In the progress of the disease, infusion of bark or other tonics are sometimes beneficial, and ought always to be tried. When the disease is protracted, it is sometimes of advantage to intermit the use of purgatives, and employ only clysters, and at the same time begin the use of steel. Under this plan, the bowels though formerly not moved by strong medicine, act more regularly, and recovery goes on fast. As this happens in the progress of protracted cases, it is probable that sometimes the purgative and mercurial medicines are pushed too far, and keep up an undue irritation. Great attention should be paid to cleanliness and ventilation, and, when convalescent, a removal to the country is highly useful.

The first part of the paper is devoted to a general  
 consideration of the subject, and to a statement of the  
 objects of the present investigation. It is then shown  
 that the problem is not only of great importance,  
 but also of great difficulty. The author then proceeds  
 to a detailed examination of the various theories  
 which have been proposed, and to a comparison of  
 their merits and demerits. He then presents his  
 own theory, and shows how it differs from the  
 others. The paper concludes with a summary of the  
 results, and a statement of the author's conclusions.

## APPENDIX.

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AS our author has not so fully illustrated the mechanism of labour, as was desirable, in the different presentations of the vertex, and as an accurate and precise knowledge of the position of the head is necessary, preparatory to the proper application of and action with the forceps or vectis, we have thought it best to add the description of the passage of the head through the straits and cavity of the pelvis in the six different positions of the vertex, as minutely laid down and detailed by Baudelocque and Gardien. To these authors we must therefore acknowledge our obligations for the pages that follow; and we are persuaded, that to the student and young practitioner of midwifery, they will not be superfluous, but on the contrary, will deserve the most serious attention, as a compass to guide him in his course through, what would otherwise prove, a wilderness of doubt and uncertainty.

We have also added a table from the last edition of *Baudelocque's art des accouchemens*, which shows the comparative frequency of the different presentations, [at least in Paris] and of those difficult and preternatural cases which peremptorily require the assistance of art, either by means of the hand alone, or by the aid of instruments.

It has already been explained, that the vertex or crown of the head, the presentation of which constitutes the first order of natural labours, is recognised by the presence of a round, solid tumor, of greater or lesser size, upon which we can trace several sutures and fontanelles.

But even when the vertex presents, the sutures and fontanelles do not always answer to the same point; which has induced practitioners of midwifery to distinguish the different positions of the vertex, according to the manner in

which this part presents at the superior strait, and which we determine by the relative situation of the fontanelles, and the direction of the sutures.

Although there is no point of the pelvis to which the posterior fontanelle, which we should always take for our guide, may not correspond, we may nevertheless confine the number of positions to six principal ones. Indeed, a sufficiently accurate idea might be given of natural parturition, by describing a lesser number of positions. But it becomes necessary to admit them as above enumerated, to explain fully those cases, where the intervention and aid of art becomes necessary. For properly to apply the forceps, and to act with them advantageously, the accurate knowledge of these different relations of the fœtal head with the pelvis, as well as its progress through the different stages of the labour, until delivered, is supposed to be well understood.

More clearly to comprehend this part of our subject, we may consider the circumference of the pelvis as divided into two segments, or semi-cumferences, one anterior and the other posterior. In the three first positions, [which have already been briefly enumerated in a note to Chapter 1st of the 2nd Book, and which we shall presently more fully explain] the posterior fontanelle answers to one, of what we may venture to term the cardinal points of the anterior semi-circumference; in the three last, the same posterior fontanelle answers to one of the diametrically opposite points of the posterior semi-circumference.

If we observe the direction that the head pursues in each of these positions, when it is expelled by the efforts of nature alone, we shall find, that in each of them, it offers some peculiarities, which it is of importance to understand. The mechanism of these different species of labour, ought to be studied with the greater attention, as it is this knowledge, which is to guide the practitioner in all his operations, in those cases of labour, where malposition of the head occurs. Vide Chap. IV. Book II.

*First Position.* In this position, the posterior fontanelle answers to the left acetabulum. The back of the infant is

situated towards the anterior and left lateral portion of the uterus and pelvis. The face and the breast answering to their posterior and right lateral portions. The feet and breech are towards the fundus uteri.

At the commencement of labour, it is frequently only the middle portion of the sagittal suture which presents at the centre of the superior strait. Whilst both the fontanelles remain as yet out of the reach of the finger in the common examination; we cannot, therefore, at this period, accurately determine the precise position of the head. For although we may ascertain that the sagittal suture is directed from the left acetabulum to the right sacro-iliac symphysis, we are as yet ignorant whether the posterior fontanelle is situated in the anterior or posterior segment of the pelvis, and of consequence, whether the vertex presents in the first or the fourth position. The same difficulty presents in discriminating between the 2nd and the 5th position, and between the 3d and the 6th, whilst we can merely reach the sagittal suture.

In the first period of labour, it is commonly one of the parietal bones which presents. As the labour advances, the middle portion of the sagittal suture retires from the centre of the pelvis, to give place to one of the fontanelles; and it is the posterior fontanelle that most frequently presents.

When the waters have been discharged, the first contractions of the uterus tend, in the natural progress of labour, to bend the head upon the breast. Whilst this is taking place, the posterior fontanelle approaches nearer and nearer to the centre of the pelvis. The head thus bent, continues to progress through the cavity, by passing from before backwards, in order to accommodate itself to the axis of the superior strait. It continues to descend, until checked by the sacrum, the coccyx, and the perinæum.

Whilst the head descends into the cavity of the pelvis in a diagonal direction, one of the parietal protuberances passes before the left sacro-iliac symphysis, and the other behind the right acetabulum.

In this position, it is the right parietal bone which an-

swers to the arch of the pubis. One of the branches of the lambdoidal suture answers to the left limb of the pubis, and the other branch is directed towards the left ischiatic notch. This has been often mistaken for the sagittal suture, and in consequence of its direction, which is from before backwards, it has been supposed that the head had already performed its movement of rotation, by which the posterior fontanelle is ultimately brought under the arch of the pubis.

The head having arrived at the bottom of the pelvis, cannot any longer follow its first direction, because it is checked by the sacrum and coccyx. The contractions of the uterus continuing to act upon it, force the occiput, as it were, to revolve from behind forwards upon the inclined plane, which the left side of the pelvis offers, in order to advance towards the symphysis of the pubis; whilst, at the same time, the face turns into the hollow of the sacrum, as it were revolving from before backwards upon the inclined plane, which the other side of the pelvis presents. If the fingers are placed upon the posterior fontanelle, whilst the head retains its lateral position, it may sometimes be perceived to perform this movement on its axis during a strong pain.

Whilst the occiput approaches the arch of the pubis, the trunk remains without motion in the uterus. This pivot-like motion of the occiput, depends solely upon the twisting of the neck. This rotation being performed, the posterior fontanelle is situated towards the centre of the arch of the pubis, and the anterior towards the sacrum. The sagittal suture is parallel to the great diameter of the inferior strait. The branches of the lambdoidal suture answer to each side of the pelvis.

The chin, which, until this period, had remained constantly applied to the breast, begins to recede from it. The occiput dilates the external parts, and engages under the arch of the pubis, under which it revolves, in rising and approaching towards the abdomen of the mother. Whilst the occiput thus progresses, the nape of the neck, which may be considered as the centre of motion, revolves under the inferior edge of the arch of the pubis. In this motion, the occiput passes over

but a small space, whilst the chin, in describing a curve, progresses from the sacrum to the inferior commissure of the labia. The expulsive forces bear upon the forehead and upon the face, during this period of labour, and oblige the chin to recede from the breast. The neck is sufficiently long to allow the head to be delivered without the trunk's advancing. If the head in its passage does not accommodate itself to this curve line, above described, but descends directly in the direction of the axis of the superior strait, every effort bears upon the perinæum, which is then in danger of rupturing in its centre. If we do not succeed in obliging the head to follow the direction above described, by applying pressure from behind forwards, and from the perinæum upwards, the only means which remains to prevent the laceration of this part, is to apply the forceps, in order to direct the head forward, and thus oblige the chin to recede from the breast.

Scarcely is the head delivered, when the face turns towards the right thigh of the woman, to which it answered in the commencement of labour; for it only turns into the hollow of the sacrum, in consequence of the twisting of the neck, and resumes its first position, as soon as the neck is restored to its former situation.

When the head is completely delivered, the shoulders, which had entered the superior strait diagonally, as well as the head, turn one towards the pubis, and the other towards the sacrum. The left shoulder, which is towards the sacrum, approaches the vulva, and begins to be engaged there, whilst the right shoulder remains applied behind the symphysis of the pubis, until the other appears externally; which indicates, that when it is proper to assist in extricating the shoulders, we should act principally upon that which is placed posteriorly.

Such is the progress of nature in this species of parturition, as every one may convince himself, if he will trace it step by step, through the course of the labour. And in observing it, he will be able to distinguish three different movements. In the first period, the head bends itself towards the breast, and progresses through the cavity of the pelvis. In

the second it performs a motion, which brings its long diameter in the direction of pubis and sacrum. In the third, the chin quits the breast, and the occiput turns backwards, in disengaging itself from under the pubis.

The head ought to present its greatest diameters to the greatest diameters of the straits; but as it regards the superior strait, it does not present as is commonly supposed, its smallest diameter to the smallest of that strait. Its smallest diameter is directed from one sacro-iliac symphysis, to the opposite acetabulum. The portion of the head which passes between the pubis and the sacrum, is still narrower than that which is termed its small diameter.

This species of labour would always be the most advantageous, if the laws of nature were invariably carried into effect, but in proportion as nature varies from the line that has been delineated, the labour becomes more and more difficult, and often indeed impossible, without the aid of art.

*Second Position.* In this position the posterior fontanelle is placed behind the right acetabulum, and the anterior is situated before the left sacro-iliac symphysis, so that the back of the child answers to the anterior and right lateral portion of the uterus, and of the pelvis; whilst the face, the breast, and the knees, are situated towards their posterior and left lateral portions.

The mechanism of labour in this position, is perfectly similar to that of the preceding. As in that, if the expulsive forces are directed in such a manner, as to apply the chin of the infant more and more to the breast, the occiput progresses during the first period through the depth of the cavity. In the second period, the occiput slides from behind forwards upon the inclined plane, which is presented by the right side of the pelvis, in order to place itself under the arch of the pubis; whilst at the same time, the face turns into the hollow of the sacrum. In the third period, the expulsive forces oblige the chin to recede from the breast; the occiput dilates the vulva as it turns upwards towards the pubis. This movement of the occiput is but inconsiderable; it does nothing but turn itself, whilst the nape of the neck

revolves under the superior part of the arch. In order that this revolving of the head backwards, which facilitates its expulsion may take place, it is necessary that the face should pass over a curve which measures in extent the whole length of the sacrum, to the anterior edge of the perinæum.

As soon as the head is delivered, the face turns towards the left thigh, to which it primarily answered. The left shoulder turns towards the pubis, and the right towards the sacrum. This latter alone advances until it appears at the vulva.

The relative proportions of the diameters of the child, with those of the pelvis, are really the same in this position as in the former. The occiput and the face have not a larger space to traverse to arrive, the one at the symphysis pubis, and the other in the hollow of the sacrum, in the position where the posterior fontanelle is situated towards the right acetabulum, than in that where it is placed behind the left. Hence it would appear, that one of these positions ought to be as favourable as the other to the expulsion of the child. But there are, notwithstanding, greater difficulties experienced in that where the occiput is to the right; because the *rectum*, which is placed on the left side of the sacrum, prevents the forehead from turning so readily into the hollow of that bone.

Practitioners have supposed that it more frequently happens in this position, than in the preceding, that the direction of the expulsive powers, instead of advancing the occiput, as in the natural order, tends to throw it back upon the shoulders. What truth there is in this supposition, we shall not here stop to investigate.

*Third Position.* In this position the posterior fontanelle is behind the symphysis pubis, and the anterior before the projection of the sacrum. The back of the infant is towards the anterior, and its abdomen towards the posterior portion of the uterus. For a long time this was considered as the most common and the most advantageous position, but both of these suppositions are incorrect; for experience on the contrary proves, that it is very rare; so much so indeed,

that many practitioners who have never met with it, have absolutely called its existence in question. Those who have imagined that the occiput constantly answered to the pubis from the commencement of labour, have only thought so, because they observed it disengage itself in this direction from the inferior strait. A regular examination through the whole process, would have taught them, that although the occiput is expelled from under the pubis, it nevertheless enters the superior strait diagonally. When the occiput passes through the superior strait directly behind the symphysis pubis, the long diameter of the head is opposed to the small diameter of this strait. The difficulty which is experienced by the head in its passage must be greater, as the friction must be more considerable. If no obliquity exists, parturition may nevertheless be accomplished with a sufficient degree of ease ; because in a well formed pelvis, the short diameter of the strait is four inches, and the long diameter of the head is no greater. If the head engages favourably, it only presents its height, or its perpendicular diameter, because the chin rises towards the breast of the infant, which facilitates the expulsion of the head.

There are but two periods to be taken notice of in the progress of this species of labour ; the face remains towards the perinæum for some time after the delivery of the head ; it does not turn to one or other of the thighs, until after the shoulders, which had entered the superior strait diagonally, have presented at the inferior strait, one being towards the pubis, and the other towards the sacrum ; but they turn indifferently to one or the other part of the pelvis, because the head has not been obliged to perform the pivot-like motion. Of course, it is not in our power previously to designate, which shoulder will turn towards the pubis.

*Fourth Position.* In this position, the anterior fontanelle is behind the left acetabulum, and the posterior before the right sacro-iliac symphysis, and the course of the sagittal suture is obliquely, from the former to the latter point. The back of the infant is to the right posterior portion, and its breast, &c. towards the left anterior portion of the uterus.

Although at the commencement of labour, the posterior fontanelle is placed towards the right sacro-iliac symphysis, the face does not always come out under the arch of the pubis. We sometimes observe, that the occiput approaches the right acetabulum, in proportion as the head advances in the pelvis. When this spontaneous conversion of the fourth to the second position takes place, it is to be considered as extremely favourable for the patient. From hence an inference has been drawn, that when the practitioner meets with this position, he ought, at the commencement of labour, to facilitate its progress, and lessen the sufferings of the female, when the face is turned towards the symphysis of the pubis, by making an effort to disengage it from that part, and bring the occiput, during the pains, rather forward towards the pubis, than towards the sacrum. If the membranes have not been ruptured, it is impossible to touch the head during the existence of a pain. This conversion cannot be accomplished without risk, except we act at the instant of the discharge of the waters. When nature spontaneously produces this conversion in the fourth and fifth positions, the same change of relative situation takes place in the trunk. We ought not, therefore, to attempt producing it by art, unless the child is sufficiently moveable, to permit the trunk to undergo the same changes in situation as the occiput; unless this were the case, the neck would suffer a twisting, which would amount to the third of a circle. It may be important to recollect the possibility of this conversion, in those cases in which we are obliged to apply the forceps, because the mode of proceeding will be different if that has taken place. We should, therefore, before applying the forceps, endeavour to ascertain whether or no the face is towards the pubis.

If the change of position, of which we have just spoken, has not taken place, the delivery of the head becomes more difficult, because, in the second period, the face turns towards the symphysis of the pubis. This part is disengaged with more difficulty from under the arch of the pubis, than the occiput; for the arch has less breadth in its superior

part, than the forehead and the face of the infant. The form of the occiput, on the contrary, accommodates itself very well to the arch of the pubis, under which it turns, whilst the face disengages itself behind.

If in this position, the contractions of the uterus are directed in such a manner, as to bear upon the occiput, it descends into the pelvis, passing before the right sacro-iliac symphysis. When the head reaches the sacrum, it can no longer follow its first direction. The contractions of the uterus oblige it to perform a pivot-like motion, which turns the occiput into the hollow of the sacrum, descending along the inclined plane of the right side; whilst at the same time, the forehead places itself under the pubis, sliding along the inclined plane, which the left side of the pelvis offers. At the end of this second period, the anterior fontanelle is situated behind the pubis, and the posterior towards the sacrum.

In the last period, the forehead cannot engage under the arch of the pubis, as the occiput does in the three preceding positions; it is obliged to ascend behind the symphysis, to the internal surface of which it remains applied, whilst the posterior fontanelle passes over the length of the sacrum, the coccyx and the perinæum to arrive at the bottom of the vulva. At this moment the edge of the perinæum is considerably stretched, and runs a greater risk of laceration than in the preceding positions. The perinæum not being capable of remaining stationary upon the inclined plane which the occiput offers, retires suddenly towards the base of the neck of the infant.

The posterior edge of the perinæum becomes then the point of support, or axis, upon which the nape of the neck revolves, whilst the occiput turns backwards towards the anus of the woman. In proportion as the head turns backwards upon the perinæum, the face disengages from under the pubis. We observe successively appear the forehead, the orbits, the nose, the mouth and the chin. As soon as the chin appears externally, the face turns towards the left thigh, to which it primarily answers. The left shoulder presents afterwards towards the pubis, and the right towards the sa-

crum. That which is posterior, disengages the first, the other remaining stationary at that time.

*Fifth Position.* In this position the anterior fontanelle is behind the right acetabulum, and the posterior before the left sacro-iliac symphysis. The back of the infant is towards the left and posterior part of the uterus, its breast and abdomen is towards the right and anterior part. It is not unfrequently the case, that the efforts of nature alone are competent to convert this position into the first, the occiput gradually approaching towards the left acetabulum, in proportion as it descends into the pelvis. All the observations that have been made on the preceding position, with respect to attempting, by the aid of art, what nature herself sometimes performs, are equally applicable to this position.

The relations of the dimensions of the head of the child with those of the pelvis, are absolutely the same in this position, as in the preceding; the face turns equally upwards. Hence the mechanism of this species of labour, is in every respect similar to that of the preceding position. If every thing is in the natural order, the occiput descends into the pelvis, passing before the left sacro-iliac symphysis. In the second period it turns towards the sacrum, at the same time that the forehead turns towards the symphysis pubis. The presence of the rectum on the left side of the pelvis, renders this rotation more difficult, by preventing the occiput from turning freely into the hollow of the sacrum. This position is one of those, in which it is most essential to evacuate the rectum by an enema. As soon as the face is disengaged from under the pubis, it turns to the right groin. The right shoulder is afterwards directed towards the pubis, and the left towards the sacrum. The latter alone advances until it appears at the vulva.

*Sixth Position.* In this position the anterior fontanelle is behind the pubis. The sagittal suture is parallel to the smallest diameter of the superior strait. The occiput and the back of the infant is towards the sacrum.

This position is the least favourable of all those which the occiput can take. Not only does the head present its length

to the smallest diameter of the superior strait, but also the face is anterior, as it regards the pelvis, as in the two preceding positions. Happily it is the most rare of all. The rounded form of the head, with difficulty permits it to remain fixed during labour against the projection of the sacrum, so that even supposing it should answer to this part of the sacrum at the commencement of the labour, it would soon turn to one of its sides, which would be better accommodated to its figure. When we happen to see the face disengage itself from under the pubis towards the end of labour, we are not thence to suppose, that the head engaged in that way in the superior strait. Although in the two preceding positions, the head traverses this strait in a diagonal situation, the face, which in the first period, was placed toward one or other of the acetabula, turns by a pivot-like motion towards the arch of the pubis, from under which it is delivered.

We can distinguish but two periods in this position. If the expulsive forces of the uterus act upon the occiput as occurs in the natural order, it progresses through the pelvis before the sacrum. Whilst the forehead is applied against the internal surface of the symphysis of the pubis, the occiput, which ought to be delivered first, considerably distends the perinæum, passing over a curve line which extends from the hollow of the sacrum to the lower edge of the vulva. At this instant the perinæum retires backwards, and passes under the nape of the neck, which revolves above it, whilst the occiput turns backwards towards the anus of the woman. As soon as the occiput begins to turn backwards, the different parts of the face, which until then had been retained in the interior of the pelvis, successively disengage themselves from under the pubis, in the order which has already been pointed out.

When the chin appears externally, the face remains sometimes stationary: afterwards it turns towards one of the woman's groins, but only at the same instant that one of the shoulders presents towards the pubis, and the other towards the sacrum. This position, also, is one of those in which it is allowable to be ignorant which of the shoulders may present

towards the pubis; for it is uncertain which; and when the change of position is procured by the aid of art, it is indifferent which we bring there.

These divisions of the presentations of the vertex or crown of the head, originated as we believe, with the experienced Baudelocque, and on this subject he very judiciously observes, that the head may without doubt present at the superior strait, in a manner different from those described. The posterior fontanelle, which as we have before observed, we should always take for our guide, may sometimes correspond to the intermediate spaces between these six points; so that we might perhaps distinguish six other positions, which might be again subdivided into as many more. This distinction, he remarks, would not only be useless and superfluous, but might confuse the ideas. There is not in fact any of these middle positions, which may not be referred to one of the six first; and each of them ought, therefore, properly to be designated by the name of that to which it approaches the nearest, as the mechanism of delivery in it is exactly the same.

These intermediate positions, therefore, ought to be referred to the three first, as often as the posterior fontanelle answers to any point of the anterior semi-circumference of the pelvis; because that fontanelle turns gradually towards the symphysis of the pubis, under which the occiput is ultimately situated.

The head, continues Baudelocque, 'sometimes follows this direction, even though the fontanelle in question, be placed opposite one of the sacro-iliac symphyses at the commencement of labour: but when it is more backward, and answers to some point in the posterior third of the superior strait, all those positions ought to be referred to the three latter, that is to say, to the fourth, fifth or sixth; because the occiput constantly turns in descending, towards the sacrum, and the forehead under the pubis.



*A TABLE of the various Presentations at the period of Parturition which indispensably require that the Child be turned and delivered by the Feet.*

[According to BAUDELOQUE.]

The Child presenting different parts of its anterior Surface to the Orifice of the Uterus.	The fore part of the Neck, or the Throat, presenting to the Os Uteri.	Of which there are IV positions, viz.	1st. The lower part of the Face on the Pubes; the upper part of the Breast on the projection of the Sacrum.		Either the right or left hand of the practitioner, indifferently, to be introduced to turn the Child. The right hand to be introduced when the Face is on the right side of the vertebral column, and vicè versà. The left hand to be introduced to reach the Feet and turn the Child, &c. The right hand to be introduced, &c. &c. Either the right or left hand, indifferently, to be introduced. The right hand to be introduced when the face is on the right side of the vertebral column, and vicè versà. The left hand to be introduced, &c. &c. The right hand to be introduced, &c. &c. The right or left hand may be introduced, indifferently, &c. The right or left hand, indifferently, may be introduced. The left hand to be introduced towards the right side of the Uterus. The right hand to be introduced towards the left side of the Uterus.
	The Breast presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The fore part of the Neck over the Pubes, and the Abdomen over the Sacrum.		
	The Abdomen presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The fore part of the Neck over the base of the Sacrum, and the Abdomen over the Pubes.		
	The fore part of the Thighs and the Pelvis, or the Sexual Parts, presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The Neck and Head resting on the left Ilium; and the Abdomen on the right Ilium.		
The Child presenting different parts of its posterior Surface to the Orifice of the Uterus.			2d. The Neck and Head resting on the right Ilium; the Abdomen on the left.		The right or left hand, indifferently, may be introduced. The right hand to be introduced towards the right side of the Uterus. The left hand to be introduced towards the left side of the Uterus. Either the right or left hand, indifferently, to be introduced, &c. Either the right or left hand, indifferently, to be introduced. The right hand to be introduced towards the left side of the Uterus. The left hand to be introduced towards the right side of the Uterus. The right hand to be introduced towards the left side of the Uterus. The right hand, &c. &c. The right or left hand, indifferently, &c. &c. The right or left hand, indifferently, &c. &c. The right hand to be introduced, &c. &c. The right hand, &c. &c. The left hand to be introduced towards the right Ilium. The right hand to be introduced towards the left Ilium.
			2d. The Breast above the Pubes; the inferior Extremities above the Sacrum.		
			2d. The Breast above the Sacrum; the inferior Extremities above the Pubes.		
			3d. The Breast resting on the left Ilium; the Thighs and Knees on the right Ilium.		
The Child presenting the different parts of its lateral Surface to the Orifice of the Uterus.			4th. The Breast resting on the right Ilium; the Thighs and Knees on the left.		The right hand to be introduced when the right side of the Neck presents; the left hand when the left side, &c. The left hand to be introduced when the right side of the Neck presents; the right hand when the left side. The right hand to be introduced when the right side of the Neck presents, &c. The left hand to be introduced, &c. The right hand to be introduced when the right Shoulder; the left when the left Shoulder presents. The left hand to be introduced when the right Shoulder presents; the right hand when the left Shoulder, &c. The right hand to be introduced when the right Shoulder presents; the left hand when the left Shoulder, &c. The right hand to be introduced when the right Shoulder presents; the left hand when the left Shoulder, &c. The right hand to be introduced if the right Side presents; the left hand if the left Side presents. The left hand to be introduced if the right Side presents; the right hand if the left Side presents. The right hand to be introduced if the right Side presents; the left hand if the left Side presents. The right hand—if right Side—the left hand if left Side. The right hand to be introduced when the right Hip presents; the left hand when the left Hip, &c. The left hand to be introduced when the right Hip presents; the right hand when the left Hip, &c. The left hand to be introduced in both varieties of the position. The right hand to be introduced in both varieties of the position.
	The Back of the Neck presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The Knees above, or on one side of the projection of the Sacrum; the Abdomen above the Pubes; the Breast and Face to the anterior portion of the Uterus.		
	The Back presenting at the Os Uteri.	Of which there are IV positions, viz.	2d. The Knees over the anterior brim of the Pelvis; the Breast and Face to the posterior portion of the Uterus.		
	The Lumbar Region presenting to the Os Uteri.	Of which there are IV positions, viz.	3d. The Knees to the concavity of the right Ilium; the Breast to the left Ilium.		
			4th. The Knees to the concavity of the left Ilium; the Breast to the right Ilium.		
	The Side of the Neck presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The Occiput over the margin of the Pubes; the Back above the Sacrum.		
			2d. The Occiput on one side of the projection of the Sacrum; the Back above the Pubes.		
			3d. The Occiput to the left Ilium; the Back to the right Ilium.		
			4th. The Occiput to the right Ilium; the Back to the left Ilium.		
	The Shoulder, Elbow, or Arm and Hand, presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The back of the Neck over the margin of the Pubes; the Lumbar Region above the Sacrum.		
			2d. The Lumbar Region over the Pubes; the back of the Neck over the posterior margin of the Pelvis.		
			3d. The Occiput on the left Ilium; the Lumbar Region on the right Ilium.		
			4th. The Occiput on the right Ilium; the Lumbar Region on the left Ilium.		
	One of the Sides of the Child presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The Back above the Pubes; the Thighs above the Sacrum.		
			2d. The Thighs and Feet above the Pubes; the Back and Head towards the Sacrum.		
			3d. The Back on the left Ilium; the Thighs and Feet on the right Ilium.		
			4th. The Back on the right Ilium; the Thighs and Feet on the left Ilium.		
	One of the Hips of the Child presenting at the Os Uteri.	Of which there are IV positions, viz.	1st. The Ear and angle of the lower Jaw to the Pubes; the Shoulder towards the Sacrum. The Face towards the left side of the mother when the right side of the Neck presents, and vicè versà.		
			2d. The Ear and angle of the lower Jaw towards the Sacrum; the Shoulder towards the Pubes. The Face towards the right side of the mother when the right side of the Neck presents, and vicè versà.		
			3d. The side of the Head upon the left Ilium, and the Shoulder on the right Ilium. The Face towards the Sacrum when the right side of the Neck presents; towards the Pubes when the left.		
			4th. The side of the Head upon the right Ilium, and the Shoulder on the left Ilium. The Face towards the Pubes when the right side of the Neck presents; towards the Sacrum when the left.		
			1st. The side of the Neck on the Pubes, and the Side over the Sacrum. The Breast towards the left Ilium, when the right Shoulder or Arm presents, and towards the right Ilium when the left Shoulder or Arm presents.		
			2d. The side of the Neck over the Sacrum, and the Side over the Pubes. The Breast towards the right Ilium when the right Shoulder presents, and vicè versà.		
			3d. The Neck and Head on the left Ilium; the Side and Hip on the right Ilium. The Back to the fore part of the Uterus when the right Shoulder presents, and to the back part when the left presents.		
			4th. The Neck and Head on the right Ilium; the Side and Hip on the left Ilium. The Breast to the fore part of the Uterus when the right Shoulder and Arm presents, and vicè versà.		
			1st. The Axilla over the Pubes; the Hip over the Sacrum. The Breast towards the left Ilium when the right Side presents, and vicè versà.		
			2d. The Axilla over the Sacrum; the Hip over the Pubes. The Breast towards the right Ilium when the right Side presents, and vicè versà.		
			3d. The Axilla on the left Ilium; the Hip on the right Ilium. The Breast towards the back part of the Uterus when the right Side presents, and vicè versà.		
			4th. The Axilla on the right Ilium; the Hip on the left Ilium. The Breast towards the fore part of the Uterus when the right Side presents, and vicè versà.		
			1st. The Thighs towards the Sacrum; the Spine of the Ilium towards the Pubes. The Breast towards the left side of the Uterus when the right Hip presents, and vicè versà.		
			2d. The Thighs towards the Pubes; the Spine of the Ilium towards the Sacrum. The Breast towards the right side of the Uterus when the right Hip presents, and vicè versà.		
			3d. The Thighs towards the right side; the Spine of the Ilium towards the left side. The Breast towards the posterior part of the Uterus when the right Hip presents, and vicè versà.		
			4th. The Thighs towards the left side; the Spine of the Ilium towards the right side. The Breast towards the anterior part of the Uterus when the right Hip presents, and vicè versà.		

*Note.*—It is to be observed that Baudeloque, and the French practitioners generally, in preternatural Labours, or where the operation of Turning, or the application of the Forceps becomes necessary, place the Woman in a Supine Position, with the Breech brought to the Edge or Foot of the Bed, so that the Cocciæ and Perinæum may be free, the Thighs and Legs half extended, the Feet resting on Two Chairs placed properly, or supported by Assistants.

1871-72

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1873

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1875-76

The following is a list of the names of the persons who have been elected to the office of Justice of the Peace for the year 1876-77. The names are given in alphabetical order, and the names of the persons who have been re-elected are marked with an asterisk.

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# TABLE OF CASES OF LABOUR,

*Which occurred at L'Hospice de la Maternite in Paris, from the 10th December 1797, to the 31st July, 1806, inclusively.*

Women delivered - - - 12,605.

Infants born - - - 12,751.

One hundred and forty-two of these women had twins. Two only had triplets.

Of these 12,751 infants, one hundred and eighteen were born before the admission of their mothers into the Hospital, or with such haste, that there was no time to ascertain the part which presented, or the real position.

Many of this number were not beyond the term of four or five months; and some from five to six, which reduces the number to 12,633, of those in whom could be accurately ascertained the part which presented to the orifice of the uterus, in the course of the labour and delivery, and the position of the particular part.

*The Regions which presented, the number of Times, and their Positions.*

	Number of times.	1st. Position.	2nd. Position.	3rd. Position.	4th. Position.	5th. Position.	6th. Position.	Positions not ascertained.
The crown of the head or vertex	12,183	10,003	2,113	4	40	22	1	
But four positions of all the other regions are admitted to exist.								
The breech or the thighs	198	118	71	3	6			
The feet	147	85	58	3	1			
The knees	3	1	0	1	0			1
The face	42	1	0	22	17			2
The belly	3	1	0	1	0			1
The occipital region	1	1	0	0	0			
The back	3	1	0	2	0			
The loins	3	1	1	0	0			1
The right side of the head	1	0	0	0	0			1
The left side of the head	4	2	0	1	1			
The right shoulder	20	0	0	7	13			
The left shoulder	18	1	0	9	8			
The right side of the thorax	2	0	0	0	1			1
The left side	1	0	0	0	1			
The right hip	3	1	0	1	0			1
The left hip	1	0	0	1	0			
	12,633	213	130	51	48			8

*Comparative statement of the Labours which were accomplished by Nature alone, with those in which the aid of Art was necessary.*

Of twelve thousand seven hundred and fifty one cases of Labour, 12,573 at least were accomplished naturally, and but one hundred and seventy-eight, at most, required the assistance of art; some by means of the hand alone, others with the forceps, or with the crotchet, after the perforation of the Cranium, which is in the proportion of 1 to 71 2-3.

Cases in which it became necessary to give assistance by the hand alone, either because of the unfavourable situation of the child, or on account of the mal-conformation of the pelvis, or from accidental circumstances, which render the labour complex,

One hundred and thirty-two in all—which in proportion to the whole, is as 1 to 96 3-5.

Viz: The child presenting

The face	-	-	-	-	18
The shoulders	-	-	-	-	38
The crown of the head with the umbilical cord	-	-	-	-	15
The breech	-	-	-	-	22
The feet	-	-	-	-	11
The other parts specified in the table	-	-	-	-	24
On account of convulsions and floodings	-	-	-	-	4

Total 132

The forceps were applied in *thirty-seven* cases, which is as 1 to 344 2-3.

The child presenting the face	-	2
The crown of the head	-	35

Of these latter the forceps were applied.

{ In ten on account of the exit of the cord;  
ten on account of the exhaustion of the woman's strength.  
Six on account of convulsions.  
Seven on account of the unfavourable situation of the head, which had been thrown backwards, &c.  
Two on account of the mal-conformation of the pelvis.

The crotchet was employed, or the cranium perforated in *nine*—which is in the proportion of 1 to 1,416 2-3:

Viz: 1 on account of hydrocephalus in the child.

8 on account of great deformity of the pelvis.

One by gastrotomy to extract an extra-uterine fœtus.

*Remark.*—Of 42 children in whom the face presented, 16 were born without any assistance,

6 were brought to one of the positions of the vertex, after which they were delivered without assistance.

Of 198—where the breech or thighs presented, 176 were born without extra aid.

Of 147—where the feet presented, 136 were born in the same way.

Of 12,751, the cord first came out but 36 times, viz: 35 times when the vertex presented, and only once with the feet.

*Sex of the children.*

Children born 12,751. 6,524 Boys. 6,227 Girls.

Children dead 530; viz: before the period of labour 412; during labour, or shortly after birth, 118.

The relative proportion of children still-born, and of those who survived but a few moments after birth, to 12,751, is as 1 to 24 1-2.

*Weight of the children.*

7,077 were weighed with the greatest accuracy; and of this number,

34 weighed	from	1 lb. to 1 1-2 lb.
69	from	2 lb. to 2 3-4 lb.
164	from	3 lb. to 3 3-4 lb.
396	from	4 lb. to 4 3-4 lb.
1,317	from	5 lb. to 5 3-4 lb.
2,799	from	6 lb. to 6 3-4 lb.
1,750	from	7 lb. to 7 3-4 lb.
463	from	8 lb. to 8 3-4 lb.
82	from	9 lb. to 9 1-2 lb.
3		10 lb.

It would appear, from the result of the experience of the superintendants of the Hospital, from which the above table has been taken, that preternatural and difficult cases occur more frequently in certain years, than in others.

# NOTES.

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## BOOK II.

### CHAP. II.

NOTE 1. p. 12.—“The Greenlanders, mostly, do all their common business just before and after their delivery; and a still-born or deformed child is seldom heard off.” Crantz’s History of Greenland, Vol. I. p. 161.

Long tells us, that the American Indians, as soon as they bear a child go into the water and immerse it. One evening he asked an Indian where his wife was; “he supposed she had gone into the woods, to set a collar for a partridge.” In about an hour she returned with a new born infant in her arms, and coming up to me, said, in Chippoway, “Oway saggonash payshik shomagonish;” or, “Here, Englishman, is a young warrior.” Travels, p. 59.

“Comme les accouchemens sont tres-aisés en Perse, de meme que dans les autres pais chauds de l’Orient, il n’y a point de sages femmes. Les parentes agées et les plus graves, font cet office, mais comme il n’y a gueres de vieilles matrones dans le haram, on en fait venir dehors dans le besoin.” Voyages de M. Chardin, Tom. VI. p. 230.

Lempriere says, “Women in this country, (Morocco,) suffer but little inconvenience from child bearing. They are frequently up next day, and go through all the duties of the house with the infant on their back.” Tour, p. 328.

Winterbottom says, that, “with the Africans, the labour is very easy, and trusted solely to Nature, no body knowing of it till the woman appears at the door of the hut with the child.” Account of Native Africans, &c. Vol. II. p. 209.

The Shangalla women “bring forth children with the utmost ease, and never rest or confine themselves after delivery; but washing themselves and the child with cold water, they wrap it up in a soft cloth, made of the bark of trees, and hang it up on a branch, that the large ants with which they are infested, and the serpents, may not devour it.” Bruce’s Travels, Vol. II. p. 553.

In Otaheita, New South Wales, Surinam, &c. parturition is very easy, and many more instances might, if necessary, be adduced. We are not however to suppose, that in warm climates women do not sometimes suffer materially. In the East Indies, “many of the women lose their lives the first time they bring forth.” Bartolomco’s Voyage, chap. 11.

Undomesticated animals generally bring forth their young with considerable ease, but sometimes they suffer much pain, and, when domesticated, occasionally lose their lives.

NOTE 1, p. 34.—Dr. Smellic relates two cases of this kind. In the first he brought away the indurated portion, but the woman died from hemorrhage. In the second he left the adhering portion, and the woman recovered. Coll. 23, c. 1. and 2. See also Gifford's cases, c. 119 and 127; and La Motte, c. 358 and 362. In these, although the adhesion was very intimate, he brought away the placenta in pieces.

#### CHAP. VI.

NOTE 1, p. 86.—Although it was the opinion of those who first described the forceps, that it was the instrument used by Chamberlain; yet of late some have supposed, but without very positive proof, that he employed the lever. This last instrument was about the same time used as a secret practice, by Rhoonhuysen, but was not divulged until about the middle of the last century. It was so constructed, as to be a very unsafe instrument, especially in rash hands. Mr. Giffard, in the beginning of the century, had repeatedly used one of the blades of his extractor or forceps, to draw or pull down the head; and much about the same time, Mr. Chapman, in one instance, performed a similar delivery. Vide Treatise, p. 186. It has been said, that Chamberlain sold the secret of the forceps to Rhoonhuysen, who, finding that he could deliver with one of the blades, improved on it, and converted it into a lever; but the dissimilarity of the two instruments at that time, is an objection to that opinion. Plates of the different forceps and levers at present in use may be seen in Savigny's engravings; and a very concise account of all the different improvements and alterations of these instruments from their discovery to the present time, may be found in Mulder's *Hist. Liter. et Critica Forcipium et Vectium Obstetricorum*. I do not think it necessary to describe the forceps, nor do I consider the slight variations made by different practitioners as of great importance. I prefer those, however, proposed by Dr. Lowder and Dr. Pole, to others. A particular kind of forceps, with three blades, was employed by Dr. Leak, but it is never used. M. Asalini has altered the forceps somewhat, and I understand, makes the junction at the extremity of the part which is held by the operator, and not at the union of the blade and handle as we do.

NOTE 2, p. 96.—The signs of a dead child have been described to be a feeling of weight, or sensation of rolling in the uterus, want of motion of the child, pallid countenance and sunk eye, coldness of the abdomen, with diminution of size, flaccid breasts which contain no milk, fætor of the discharge from the vagina, liquor amnii coloured apparently with meconium, although the head presents, puffy feeling of the head, want of firm tumour formed by the scalp when the head is pressed in a narrow pelvis, no pulsation in the cord, &c. Most of the cases requiring the crotchet cannot be benefited by any marks characterizing death of the child in the progress of gestation; and we well know, that the child may die during labour, without testifying this for a length of time by any sensible signs; and that those enumerated above are deceitful, I believe every attentive and unprejudiced practitioner will join with me in maintaining. Nothing but unequivocal marks of putrefaction of the child itself can make us certain, and these can-

not be discovered for some time. Factor of the discharge is not a test of this. Vide Mauriceau, obs. 281. When a woman bears a child which has been for some time dead, we must watch lest her recovery prove bad.

I may notice here, that in order to get rid of the crotchet, small forceps have been applied over the collapsed head, or a kind of crutch or tire-tete has been inserted within the cranium. Some have employed a trephine in place of a perforator.

NOTE 3, p. 100.—This practice was first adopted about the middle of the last century, by Dr. Macauley in London, and was afterwards followed out by others. About twenty years after this, it was proposed on the continent by M. Roussel de Vauzeme; and lately Mr. Barlow, in the eighth Vol. of *Med. Facts*, &c. has given several cases of its success.—See also *Med. and Phys. Journal*, Vols. XIX, XX, and XXI. It may not be improper for me to mention as a caution, that I have been called to consider the expediency of evacuating the liquor amnii, where there was no deformity of the pelvis, but merely a collection of indurated fæces in the rectum.

#### CHAP. VII.

NOTE 1, p. 105.—I believe few will dispute, that the precise deformity requiring the cæsarean operation, must, to a certain extent, be modified by the dexterity of the operator. I shall suppose, that a surgeon, in a remote part of the country, far from assistance, is called to a patient whose child is evidently alive, and whose pelvis measures just as much as would render it barely possible to use the crotchet, were he dexterous; but he has not a belief that he could accomplish the delivery with that instrument. Would that man be wrong in performing the cæsarean operation? In such a case I would say, upon the principle that a man is to do the most good in his power, that if no operator more experienced can be had, within such time as can be safely granted, the surgeon ought, after taking the best advice he can procure, to perform the cæsarean operation, by which he will save one life at least. By the opposite conduct, there is ground to fear that both would be lost. In a case related in the *Jour. de Med.* for 1780, a woman in the village of Son had the child turned, and even the limbs separated without delivery being accomplished; four days afterwards, the cæsarean operation was performed, and the woman died.

#### CHAP. VIII.

NOTE 1, p. 114.—Dr. Bland is rather against delivery, and for trusting to nature. Dr. Garthshore, *Jour.* VIII. 359, says, more women have recovered of this, who were not delivered, than of those who were violently delivered.—Dr. Denman concludes, that women, in the beginning of labour, ought not to be delivered, II. 381, and admits of it only when it can be done easily.—Baudelocque says, that we ought not to be in haste to deliver, and never to do it when nature seems to be disposed to do it herself. Dr. Hull, *Obs. &c.* p. 245, says, that we should trust to the usual remedies, till the os uteri be easily dilatable, or be dilated, and then deliver. He informs me, that in every case which proved fatal, there was no dilatation of the os uteri.

NOTE 2, p. 114.—Dr. Osborn, p. 50, says, that no remedy can be used with any reasonable expectation of benefit, till delivery is completed; and that therefore it is our indispensable duty to effect it in the quickest possible manner.—Dr. J. Hamilton, *Annals*, V. 318, et seq. says, that when convulsions occur during labour, delivery is to be accomplished as soon as possible.—Dr. Leak, that when they seem to proceed from the uterus, speedy delivery is useful; but when from “any cause independent of the state of pregnancy,” delivery would be hurtful, II. 348.

NOTE 3, p. 116.—In a case which I saw, the placenta was retained by a spasmodic stricture, though the child was expelled; every allowable attempt was made to extract it, but in vain. The uterus acted from the os uteri towards the rent, which was at the fundus. The woman died. The placenta was found still in utero. The intestines were inflamed. See also, Crantz, de *Utero Rupto*, p. 22; and Dr. Cathral’s case in *Med. Facts*, Vol. VIII. p. 146.

NOTE 4, p. 120.—Vide successful case by Thibault, in *Jour. de Med.* for May 1768.—M. Baudelocque relates a case where the operation was twice performed on the same patient, for the same cause. In *Essays Phys. and Lit.* Vol. II. p. 370, is a case most incredible, where both the uterus and abdominal integuments were torn during labour. The child escaped, and the woman recovered.

NOTE 5, p. 120.—Astruc. liv. v. chap. iv. quotes a case, where the child remained in the abdomen for 25 years. In another case, the midwife felt the child’s head, but after a severe pain it disappeared, and the woman complained only of weight in the belly. It was expelled by abscess. *Hist. de la Société de Med.* Tom. I. p. 388. In Dr. Bayle’s case, the child was retained twenty years. *Phil. Trans.* No. 139, p. 997. In Mr. Birbeck’s case, the child was discharged by the navel. *Phil. Trans.* Vol. XXII. p. 1000. Bromfield’s patient did not get rid of the child, but she lived for many years, and after death the rent was visible. *Phil. Trans.* Vol. XLI. p. 696. In Dr. Sym’s patient, the process for expelling the child by abscess was in a favourable train, when by imprudent exertion fatal inflammation was excited. *Med. Facts*, Vol. VIII. p. 150. Bartholin also gives cases. Le Dran relates an instance, where the uterus was ruptured on the 23d of April. On the 13th of May the placenta was expelled; on the 16th a tumour appeared at the linea alba, which was opened, and a child extracted; the woman recovered. *Obs.* Tom. II. ob. 92.

NOTE 6. p. 120.—In a case communicated to Dr. Hunter, the forceps were pushed through the cervix uteri, and the intervening portion between the laceration, and the os uteri was afterwards cut. The labour was finished naturally, and the woman recovered. *Med. Jour.* Vol. VIII. p. 368. Dr. Douglass relates the successful case of Mr. Manning, in his *Observations*, p. 6. Dr. A. Hamilton gives a fortunate case, where delivery saved the mother. *Outlines*, p. 384; and Dr. J. Hamilton, relates one in his *Case*, p. 138, where the rent had contracted so much, as to give some difficulty to the delivery. The case is instructive.

M. Coffiners gives a memoir on this subject, in the *Recueil Period.* Tom. VI. in which he remarks, that laceration near the vulva is easily cured; at

the upper lateral part of the vagina, it is dangerous; and at the anterior and posterior part, near the bladder and rectum, it is generally mortal; but in one case the woman recovered, although the hand could be introduced into the bladder. The woman had incontinence of urine afterwards. In his eighth case, the child lay transversely, and the vagina was torn, and filled with clots; but the peritoneum was still entire, and therefore the wound did not enter the abdomen. The uterus was supported with a napkin until the child was turned. Dangerous symptoms supervened, but the woman recovered. He gives fifteen cases, and of these, six recovered. Several were produced by attempts to reduce the arm of the child.

## BOOK III.

### CHAP. III.

NOTE 1, p. 138.—Mr. White of Paisley describes it very well, as resembling a printer's ball. *Med. Com.* Vol. XX. p. 147. Sometimes it does not pass through the os uteri. Denman, II. p. 351.

Mangetus, lib. IV. p. 1019, relates a fatal case, where the tumour was taken for the head of a second child. It was at first partially, and then completely, inverted with excruciating pain.

Mr. Smith relates a case of inversion, where the accident was followed by syncope, subsultus, &c. The subsultus and frequent pulse continued for some days, with smart fever, and inability to move. *Med. and Phys. Jour.* Vol. VI. p. 503. In the same volume, Mr. Primrose gives an instance where a great part of the uterus sloughed off, and the woman recovered.

NOTE 2, p. 140.—La Motte, 383, mentions a woman who had inversion for above thirty years. Dr. Cleghorn, *Med. Commun.* II. 226, relates a case where the uterus slowly returned to its natural size. This woman still menstruates, and enjoys tolerable health; it has been of twenty years standing. The womb is smooth, moist, and gives little pain. Menstruation also continued in Dr. Hamilton's case, *Com.* XVI. p. 315.

NOTE 3, p. 142.—The inverted uterus has been torn off with the crotchet, being mistaken for the child's head. *Jour. de Med.* Tom. XLI. p. 40. A case of successful extirpation is inserted in the same work for August 1786. Wrisberg relates a case, where it was cut off by the midwife, who had inverted it. A successful case is given by Dr. Clarke, in *Edin. Med. and Surg. Jour.* Vol. II. p. 419. Another case is mentioned in the *Recueil des Actes de la Société de Lyon*. Mr. Hunter of Dumbarton gives a successful case, in *Annals of Med.* vol. IV. 366. I have particularly examined this woman, several years after the operation. She was delivered without any violence, after having been twenty-four hours in labour. In about an hour the placenta came away. She had considerable flooding and great weakness. She could not void her urine, which in two days was drawn off with the catheter, and this was frequently repeated. A fortnight after delivery, the womb

came down, with pains. It was replaced, but again came down. A fœtid discharge took place, and the woman was reduced to a state of great weakness. A ligature was applied, which, she says, gave her a good deal of pain, and the tumour was cut off. Her account differs in some respects from Mr. Hunter's, probably owing to her speaking from memory alone, some years after the event; and she does not notice the previous extraction of any lumps from the uterus, which Mr. Hunter mentions, for most likely she did not know of that. About two years ago, she had for a length of time a discharge of thick white matter. At present, the vagina is of the usual length; and at the top, a transverse aperture is felt, the posterior lip or edge of which is longer and more tendinous to the feel, than the anterior. It admits the tip of the finger, and feels softer than the os uteri, in a natural state. There is no cervix uteri. The mammæ are firm, and of good size, and she has not lost the sexual desire. She is subject to dyspepsia. From the preparation in the possession of Dr. Jeffray, there can be little doubt that part of the uterus was extirpated.

Bartholin relates a case, where the inverted womb was torn away, and found under the bed of the dead patient.—Blasius, a case, where the uterus was hard and scirrhus; it was tied, but on the third day the patient died. In the cavity of the portion were found the ovaria and ligaments.—Goulard's patient died on the 18th day. *Mem. of Acad. de Sciences*, 1732.

#### CHAP. IX.

Page 150. When a patient is known to be subject to syncope or spasmodic disease after delivery, a dose of *spt. ammon. arom.* combined with tincture of opium, should be ready for her after the child is expelled, and the abdomen ought to be duly supported.

#### CHAP. XVI.

NOTE 1, p. 170.—Dr. Denman, Vol. II. p. 493, considers puerperal fever as contagious. He strongly advises early bleeding, giving an emetic or antimonial, so as to vomit, purge, or cause perspiration; and if this do good, he repeats the dose, and uses clysters, fomentations, leeches, and blisters. He gives an opiate at night, and a laxative in the morning; or, if there be great diarrhœa, he employs emollient clysters. The strength is to be supported by *spt. ether nit.* or other cordials.

Dr. Leak, Vol. II. trusts much to blood-letting; if the patient be sick, he gives a gentle vomit; if not, laxatives, and then antimonials; applies blisters, and in the end restrains purging with opiates, and prescribes bark.

Dr. Butter purges and bleeds only where there is well marked inflammation, and is satisfied often with taking only three ounces of blood at a time, when there is an exacerbation.

Dr. Manning very rarely bleeds, but trusts to emetics and purges, and employs Dr. Denman's antimonial, which is two grains of tartar emetic, mixed with  $\frac{3}{4}$  of crab's eyes, and the dose is from three to ten grains.

Dr. Walsh forbids venesection, and advises emetics, followed by opiates and cordials.

Dr. Hulme trusts to clysters, purges, and diaphoretics, and does not bleed unless there be pain in the hypogastrium, accompanied with violent stitches, and a resisting pulse. Even then he bleeds sparingly.

M. Douleat advises repeated emetics, followed by oily potions, and bark, combined with camphor.

Mr. Whyte is against blood-letting. He gives at first a gentle emetic, followed by a laxative and diaphoretics. Then he gives bark, with vitriolic acid, and supports the strength.

Dr. Joseph Clark trusts chiefly to saline purges and fomentations.

Dr. John Clarke, in his excellent Essays, forbids venesection, and advises bark as freely as the stomach will bear it. Opium is also to be given, together with a moderate quantity of wine, along with sago. If there be much purging, the bark is to be omitted, till some rhubarb be given, or a vomit, if there be little pain in the belly,

Dr. Kirkland bleeds only if the patient have had little uterine discharge, and the pulse indicate it. He employs laxatives, and in the end bark and camphor.

Dr. Hull considers this disease as simple peritoneal inflammation, which may affect three classes, the robust, the feeble, and those who are in an intermediate state. In the first he bleeds and purges, in the second he begins with emetics and ends with bark, and in the third he bleeds with great caution.

Dr. Hamilton advises puerperal to be treated as putrid fever.

Guinot, Allan, and others, recommend carbonate of potash, in doses of ten or fifteen grains.

M. Vigarous joins with those who consider this as not a fever *sui generis*, but one varying according to circumstances. It frequently begins, he says, before delivery, but becomes formed about the third day after it. He has five different species. 1st, The gastrobilious, proceeding from accumulation of bile during pregnancy. The essential symptom of this species is intense pain in the hypogastrium. He advises first ipecacuanha, which he trusts to chiefly, and then clysters, laxatives, and saline julap. 2d, The putrid bilious. This is occasioned by bleeding, or neglecting evacuations in the former species; or even without improper treatment, the fever may from the first be so violent, that bilious matter is absorbed. It is marked by great debility, small or intermitting pulse, tumour of the hypogastrium, with sharp pain and putrid symptoms, aphthæ, vomiting, fætid stools, &c. He advises vomits, laxatives, and bark in great doses, with mineral acids, and clysters containing camphor. 3d, The pituitous fever, attended with vomiting of pituita. The surface is pale, the pulse has not the force or frequency it has in the former species, the heat in general not increased, anxiety, weight, and vertigo, rather than pain of head, often miliary spots, and the usual symptoms of pain in the belly, and subsidence of the breasts. He gives vomits, and afterwards three or four grains of ipecacuanha every three hours. If he uses purgatives, he conjoins them with tonics. 4th, With phlogistic affection, or inflammation of the womb, attended with great weight about the pelvis, swelling pain, and hardness in the lower belly, sup-

pression of evacuations, sharp frequent pulse, acute fever, and the countenance not so sunk as in the putrid disease. He advises venesection, leeches, and low diet. The same remedies, with blisters, are to be used, if pleuritic symptoms occur. 5th, Sporadic fever, proceeding from cold, passions of the mind, &c. Puerperal fever he considers as apt to terminate in milky deposits in the brain, chest, legs, &c.

Dr. Gordon, p. 77, et seq. depends on early and copious blood-letting, taking at first from 20 to 24 ounces, and purges with calomel and jalap. He is regulated rather by the period of the disease than the state of the pulse, bleeding, though it be feeble.

Dr. Armstrong considers this fever as decidedly inflammatory, and trusts to the early use of the lancet followed by a large dose of calomel, from one scruple to half a dram, with the subsequent assistance of infusion of senna with salts.

[Mr. Hey agrees with Drs. Gordon and Armstrong in considering the disease as of a highly inflammatory nature, his practice also consists in copious depletion by venesection and cathartics.]

Dr. Brennan has lately published a pamphlet, recommending in place of blood-letting, the free use of oil of turpentine internally, and the external application to the belly of a cloth soaked in it. The subject is worthy of serious attention.

When upon this subject, it may not be improper to mention that a young practitioner may mistake spasmodic affections, or colic pains, for puerperal inflammation; for in such cases there is often retching and sensibility of the muscles, which renders pressure painful. But there is less heat of the skin, the tongue is moist, the pulse, though it may be frequent, is soft, the feet are often cold, the pain has great remissions if it do not go off completely, there is little fulness of the belly, and the patient is troubled with flatulence. It requires laxatives, antispasmodics, anodyne clysters, and friction with camphorated spirits. Blood drawn in this disease, after it has continued for some hours, even when the woman is not in childbed, is sized, and it is always so in the puerperal, as well as the pregnant state, although the woman be well.

#### CHAP. XVII.

NOTE, p. 173.—In some instances, the patient has been sensible of the pain, which expelled the child, rushing violently down the leg. After a short time it has abated, but about the usual period this disease has appeared.

#### CHAP. XXI.

Page 183.—Some women feel, after lying in, a considerable weakness or sensation of want about the belly, which is frequently increased by nursing. It is often produced by taking off the bandage too soon from the abdomen, which should not be done for a month at least, and is relieved by the application of a broad firm band round the belly. When there is constant aching in the back and failure of the appetite, nursing must be abandoned.

Pain in the side, or in the abdomen, which is sometimes produced by nursing, is often relieved by friction, warm plasters, and an invigorating plan. General weakness require tonics, which must be varied.

## BOOK V.

### CHAP. I.

NOTE 1, p. 199.—In choosing a nurse, it is necessary to be satisfied that she enjoys good health, and has an adequate supply of milk. Certain rules have been laid down to enable us to ascertain the quality of the milk by its appearance; but it is sufficient that it be not too thick, and have a good taste. With regard to the quantity, we cannot judge at first, for the milk may be kept up so as to distend the breast, and give it a full appearance. A woman who is above the age of 35 years, or who has small flaccid breasts or excoriated nipples, or who menstruates during lactation, or who is of a passionate disposition, should not be employed as a nurse. Those who labour under hereditary diseases should, at least for prudential motives, be rejected. The woman's child, if alive, should be inspected, to ascertain how it has thriven, and both it and the nipple should be examined, lest the nurse may have syphilis. A woman who has already nursed several months is not to be chosen as the milk is apt to go away in some time, or become bad. It is farther of great advantage to attend to the moral conduct of the nurse, for those who get drunk, or are dissipated, may do the child much mischief.

With regard to the diet of a nurse, it is improper to pamper her, or make much difference in the quality of the food, from what she has been accustomed to. It is also proper that she be employed in some little duty in the family, otherwise she becomes indolent and overgrown.

### CHAP. IV.

NOTE 1, p. 256.—M. Mahon, from his observations in l'Hospice de Vaugirard, says that the symptoms appear as follows, the most frequent being put first. Ophthalmy; purulent spots; ulcerations; tumours; chancres on the mouth, and aphthæ; livid, ulcerating, and scabbing pustules; chancres on the genitals, and about the anus; excrescences; peeling off of the nails of the feet and hands.


NOTE 2, p. 257.—Children may have ulceration about the anus, genitals, and groins, succeeding intertrigo, owing to neglect of cleanliness, without any venereal affection. But the absence of other symptoms, particularly of sore throat, or ulcer of the mouth, and the amendment experienced by the use of lotions, and keeping the parts dry and clean, will enable the practitioner to form a diagnosis, and the aspect of the sores will assist him. This fretting of the parts, and even some degree of excrescence may attend psoriasis, and the herpetic spots of children formerly described; and in this

case, especially if the child belong to a poor person, the disease is too often decided to be syphilis. There is, however, perhaps no individual symptom, which can decidedly characterize syphilis in children; and the diagnosis must be formed by the combination of symptoms, and often by the progress of the disease. Many children are rashly put upon a course of mercury, who do not require it; perhaps, because the practitioner thinks it a point of honour, to determine the nature of the disease at the first glance.

NOTE 3, p. 260.—Adults are sometimes seized with this disease. A very remarkable case of this kind is recorded in the 48th vol. of the Phil. Trans.—The subject of it was a girl, aged 17 years. She had excessive tension, and hardness of the skin, all over the body, so that she could hardly move. The skin felt like a dry hide or piece of wood, but she had some sensation when pressed on with the nail or a pin. It was cold and dry, the pulse was deep and obscure, but the digestion good. It began in the neck, then affected the face and forehead, and at last she could scarcely open the mouth.

NOTE 5, p. 266.—If the progress have been very favourable, the arm, about the eighth or tenth day, will exhibit a circular elevation, flattened on the surface, and surrounded with circumscribed redness. With this state of the arm, unattended with high fever, we may be sure that the patient will do well and probably the secondary pustules will not mature. If the elevation of the cuticle be less marked, perhaps not circular, but at the same time not with jagged edges, if the surrounding redness follow the irregular shape of the pustule at a considerable distance, having, however, its circumference defined and not shaded, then, though the fever may have been higher than in the former case, yet we may be sure that the danger is over; and if any pustules appear, they will be late, and probably will not mature. If the inflammation run high at the arm, with surrounding redness, irregular in its figure, and shaded instead of being circumscribed at its circumference, we must examine the arm carefully; if we find a cluster of very small blisters, which are only confluent from their vicinity, but are distinct at the edges, where they are more distant, we may, although the fever have been considerable, prognosticate that he will have a mild subsequent disease, and that the arm will heal easily. But if this high inflammation be unattended with any distinct little bladders, particularly if, instead of rising above the surface, the inoculated part seems somewhat depressed with a dusky brown skin, as if drawn lightly over it, the fever will be at the same time considerable; and though all constitutional danger may subside with it, yet we may expect a mortified part in the arm, but it will be cured by exposing it to the air. Popular View, p. 63, et seq.

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